ANNALS OF OTOLOGY.

VOL. VI. FEBRUARY, 1897. No. 1.

CONTRIBUTIONS TO THE ÆTIOLOGY OF PULMONARY TUBERCULOSIS.*

By W. Freudenthal, M. D.,

NEW YORK.

PRESIDENT GERMAN MEDICAL SOCIETY OF THE CITY OF NEW YORK—LARYNGOLOGIST TO ST. MARK'S HOSPITAL, THE MONTEFIORE HOME, AND THE GERMAN POLIKLINIK—CONSULTING LARYNGOLOGIST TO BETH ISRAEL HOSPITAL, ETC.

While in former times the welfare of the people was threatened with great epidemics, such as typhus, "black death," smallpox, etc., nowadays, thanks to the zealous studies of the hygienists, these diseases are almost unknown in some parts of the globe. But other enemies menace the health of the human race much more than ever before; for example, the neuroses, with all their multiplied modifications, and tuberculosis. It is the latter that we shall have to deal with in the following deductions. The chain of ideas that led up to this question was the following:

In a paper published last year, I tried to demonstrate the increasing frequency of post-nasal catarrh and the causes that favored its origin and its propagation.† I do not know whether I was successful in this attempt. However, even then it struck me that the factors that were very fav-

*This article appeared *in part* in the "*Festschrift*," in honor of Professor B. Fraenkel of Berlin—Archiv fürLaryngologie und Rhinologie Bd. V., 1896.

†W. Freudenthal: Some Points Regarding the Etiology and Treatment of Post-Nasal Catarrh, Etc. *The Jour. of the Am. Med. Ass.* November 9, 1895.

29920

orable for the origin of post-nasal catarrh, were also of great importance for the ætiology of tuberculosis. And I asked myself: "Is there any connection between these two diseases? or is tuberculosis nothing else, in many cases, perhaps, but a necessary consequence of post-nasal catarrh?" Let us, therefore, try first to investigate the causes which are favorable to the origin of each of these diseases; i. e., to establish, if I may say so, the intrinsic and extrinsic causes for their thriving. Then it will be our task to see whether there really exists a connection, and in which way finally a post-nasal catarrh can lead to tuberculosis.

The naso-pharynx is a cul-de-sac, situated between nose and pharynx. Its function is, therefore, in the assisting of the physiological action of the pharynx, as well as of the nose. The latter does not interest us for the present. Regarding the second point, I think I have proven in the above-mentioned article what a great role the naso-pharynx plays in respiration. It is of still greater importance for the thorough moistening of the inspired air, than the nose. It has, on the other hand, the undoubted task of entrapping all foreign bodies which have passed unchecked through the gates of the nose. The more the nasal mucosa has undergone certain pathological changes, the oftener this will occur. Suppose we have a wide, atrophic nose. Here, the current of air will pass almost unhindered in a straight direction, until it strikes against the posterior wall of the naso-pharynx. Through this almost vertical line of force, a light whirl-motion arises, in consequence of which the inspired air remains here longer than in the nose. Thus, to the foreign bodies contained in the air—in which we count micro-organisms of all kinds—an occasion is given for settling at this point. The wider the nasal passages, and the drier the nasal mucosa, the more bacteria will settle in the naso-pharynx, and vice versa.

If we now ask whether there are, in the naso-pharynx, any further predisposing conditions of an anatomical or physiological nature, which influence favorably the settling and development of bacteria, we must answer, yes. Before all, is to be mentioned here the considerable accumulation of glandular tissue, whose surface is provided with crypts. True, the whole mucosa is covered with ciliated epithelium, but in younger individuals and in the crypts,

we find flat epithelium. More of this later on. We should, therefore, expect to find bacteria already in normal conditions, but still much more in pathological conditions. Thus the naso-pharynx would form a reservoir in which foreign bodies, etc., would be retained for the protection of the whole organism. Experimentally, this protection which the naso-pharynx is able to give has been demonstrated by Hildebrandt[1] and Kayser. Kayser proved that respiratory air heavily laden with magnesia left by far the greater part of the dust in the nose and naso-pharynx. Hildebrandt put the question to himself, whether all micro-organisms present in the air during respiration, get into the lungs unmolested. He made four different experiments: He took parts from the lung, trachea, nose, etc., of a rabbit, and spread them on plates or prepared cultures, and came to results which we suppose are known. Then he repeated the experiments of Arnold, letting the animals inhale, instead of dust, a bacterium, aspergillus fumigatus. He took two rabbits, one of which had to inhale through the nose and the other through a previously made tracheotomy wound, the spores of aspergillus fumigatus, each three-quarters of an hour. Autopsy after four days: In the tracheotomized animal, both upper lobes of the right lung and the upper lobe of the left lung, were perfectly hepatised; in the other parts, only single small herds. Both lungs of the other animal, which had *breathed through the nose, were absolutely free from any microscopically visible change*. Thus it was proven that the naso-pharynx affords a very strong protection against the invasion of spores into the deeper lung tissue, if the amount of bacteria in the air is not excessively raised; in other words, that these spores are deposited in the naso-pharynx.

In apparent contrast to this are the results obtained by St. Clair Thomson and R. T. Hewlett. In an excellent and interesting work[2] on the micro-organisms in the *healthy* nose, they come to the conclusion, that in the nasal mucosa proper, micro-organisms are an exception. The contradiction in these reports, however, is only an aparent one. Even though the greatest majority of all inhaled

[1]Gustav Hildebandt: Experimentelle Untersuchungen ueber das Eindringen pathogener Mikroorganismen, etc., Beitraege zur pathol. Anat. und Phys., Ziegler und Nauwerck, Bd. 2, 1888, p. 411.

[2]St. Clair Thomson and R. T. Hewlett: Micro-Organisms in the Healthy Nose. Medico Chir. Transactions, Vol. 78, 1895.

micro-organisms are kept off in the vibrissae and in the vestibule, one can easily imagine, even under perfectly normal conditions (more so where the vibrissae are lacking), that a part of the micro-organisms passes through this portion. With the air current, it comes directly into the naso-pharynx, without adhering to the Schneiderian membrane. Therefore, these spores which have escaped the vestibule and the vibrissae, are hindered by the mucosa of the retro-pharynx from getting into the organism.

In parenthesis, I should like to mention the fact stated by Zaufal, that even the normal tympanic cavity, as a rule, is not free from spores, but contains some, if only a few in number, and those capable of propagation.

When these spores are found in a *normal* tympanic cavity, one will probably not err in supposing that they came from a *normal* naso-pharynx.

So it is with the normal conditions. But how is it with the unusually frequent pathological changes in the naso-pharynx? Once a pathological state is established, nowhere are more favorable conditions found for the settling and *developing* of micro-organisms than here. Let us consider the most frequent of the affections of this place: the post-nasal catarrh. In the latter affection we find a ciliated epithelium, pathologically changed or entirely absent. We find a tenacious, adhesive, stagnating mucus, whose influence upon the development of bacteria can only be a favorable one. We finally find glandular tissues, which only too easily take up and harbor in their crypts, all noxes.

That, furthermore, micro-organisms from the buccal and pharyngeal cavity may get to this favorable nourishing place, I do not consider at all improbable. Naturally, this will not take place during respiration, as even in mouth-breathers, the current of air at the inspiration goes downward. That, however, the micro-organisms, so numerous in the buccal cavity, during expiration and during a breathing pause, can reach that place where, uninfluenced by external agents, they can lead a comfortable life, we can well imagine. And in fact, we do find in the naso-pharyngeal cavity very numerous micro-organisms. I have seen, in about twenty examinations, a great mass of cocci, pus corpuscles, then the streptococcus pyogenes and the staphylococcus pyogenes, sarcina, etc.

Such examinations have been made by others; but I considered it necessary to convince myself of the quantity of organisms found here.

And now we come to the more important question: If we so frequently meet with all these noxes, should we not expect to find also the tubercle bacillus, whose ubiquity in a large city cannot be denied? Or should we not expect to have, in the naso-pharyngeal cavity, the primary affection of tuberculosis of the lungs? Although rarely, still we find the tubercle bacilli in the nose and naso-pharynx. While the reports are scarce, more and more proofs are accumulated in favor of our theory.

In the laboratory of Prof. Straus in Paris, the bactericidal effect of the *nasal* mucus was proven by Wurtz and Lermoyez; but, in spite of it, Straus found tubercle bacilli in the nasal mucus of perfectly healthy noses. The investigations of Seiffert, Luc, Hajek, Cartaz and Lermoyez belong here.

Dieulafoy removed, from apparently perfectly healthy children, 61 times, parts of adenoid vegetations, or hypertrophic tonsils, and vaccinated guinea pigs therewith. In 8 cases, tuberculosis developed. Dieulafoy concludes that, in the same proportion, the adenoid vegetations or hypertrophic tonsils have to be considered as an initial tuberculous process.

Habermann saw twice, out of eight cases, tuberculous ulcers in the naso-pharynx, and Thost saw, in one case, tuberculous ulcerations at the vault of the pharynx.

Through autopsies on four hundred cadavers, Harke found severe affections of the nose and naso-pharynx in most infectious diseases. This was especially the case in children.

Finally, Dmochowski received, through Dr. Wroblewski, adenoid vegetations for examination. They came from an anaemic thirteen-year-old boy, who was hereditarily not affected with tuberculosis. "On microscopical examination, I found on the surface fine ulcerations, and even in the parenchyma, typical tubercles, just such as develop most frequently in the lymphatic tissue, with an infiltration area, epitheloid and giant cells, and in the centre, with cheesy degeneration." But Dmochowski did not find tubercle bacilli. The boy developed well, and even after two year's observation, one could not discover anything in the lungs. But, otherwise, Dmochowski as yet

does not consider the proofs for the primary affection of the naso-pharyngeal cavity satisfactory.

In spite of this it is evident, according to these few communications—to which we could add some more clinical reports—that tuberculosis and primary tuberculosis of the naso-pharynx *does* occur. We believe, however, that its occurrence at this place can, not only be occasionally found, but that it is an extraordinarily frequent one. We shall try to add more important proofs to this end:

Fifteen years ago Eugen Fraenkel[1] examined fifty cadavers of patients who died of tuberculosis. In the selection of these cadavers he acted quite without regard to former complaints, or the like. Among these cases were none of acute miliary tuberculosis. Of these fifty cadavers, there were ten which showed ulcers in the naso-pharynx. These had their greatest diameters, variously in the sagittal or in the transverse direction, often spreading to the ostia of the tubes. In no case was the ear affected. Besides the ulcerations, there occurred superficial loss of substance.

Fraenkel concludes from this, that 1st., these ulcerations can be present, at a time when only minute changes are to be shown in the lungs. He believes, however, that in most cases they accompany an already developed phthisis. 2nd. At times these ulcers are latent and are discovered only by anatomical examination, while through their presence, very disagreeable sensations of pain are felt. These give rise to the prominent complaints of such patients. Fraenkel also believes that the symptoms often complained of, such as lancinating pains in the ears, cannot be identified with ulcerations in the larynx, but are *frequently* caused by ulcers in the naso-pharynx. In this he is in accord with Traube.

Another author who has worked much in this field is Dmochowski.[2] Having examined the tonsils of patients who died of tuberculosis, he found in almost all the advanced cases, tuberculous changes in them. Then he concluded, that tuberculosis can develop secondarily in the naso-pharynx, as well as on the tonsils. For this purpose he examined 64 cadavers and found:

[1]Eugen Fraenkel: Anatomisches und Klinisches zur Lehre von den Erkrankungen des Nasenrachenraums, etc. Zeitschr. f. Ohrenh., 1881, p. 113.

[2]Z. Dmochowski: Ueber sekundaere Affectionen, etc. Beitrage zur Pathol. Anatomie, 1894, p. 109.

1. Out of 8 cases of tuberculosis miliaris acuta, there were 6 cases with tuberculosis retro-nasi.
2. Out of 26 cases of tuberculosis pulmonum chronica, there were 6 cases with tuberculosis retro-nasi.
3. Out of 14 cases of tuberculosis pulmonum chronica et enteritis tuberculosa, there were three cases with tuberculosis retro-nasi.
4. Out of 7 cases of tuberculosis pulmonum et laryngis chronica et enteritis tuberculosa, there were 2 cases of tuberculosis retro-nasi.
5. Out of 6 cases of tuberculosis pulmonum et laryngis chronica, there was 1 case of tuberculosis retro-nasi.
6. Out of 3 cases of tuberculosis pulmonum et laryngis et pharyngis chronica, there were 3 cases with tuberculosis retro-nasi.

Out of these 64 cases, 21, or one-third of all, showed tuberculosis of the naso-pharynx. These numbers are so surprising, that they well merit our fullest attention.

If we recapitulate briefly, we see that Straus proved that the first stage of the infection, through the upper air-passages, showed the virulence of the tubercle bacilli in the nose of healthy persons, who had stayed in rooms inhabited by tuberculous patients. Then Dieulafoy showed, that in one-third of the cases of adenoid vegetations, and of hypertrophied tonsils, operated upon by him in healthy children, tuberculosis also was present. In patients who died of phthisis, E. Fraenkel found tuberculosis retro-nasi in one-fifth, and Dmochowski even in one-third of all cases.

These numbers speak so plainly, that it will be hard to find anybody, who will still believe in the mere coincidence. I rather believe that we have not paid enough attention to the retro-pharynx, and, therefore, have not seen tubercles, etc., in this region. Of course, the examination of this place is not always an easy task, and we agree perfectly with Dmochowski when he says: "Clinical examinations of the naso-pharyngeal cavity are constantly made nowadays, but in many cases the examination with the mirror is not enough. In this manner we are often not able to diagnosticate the very fresh processes, or those localized somewhere in the depth. In more advanced cases the general condition of the patient does not permit of any tormenting examination."

Added to this, comes the unconquerable difficulty of examining the naso-pharynx in many people. I encountered all these difficulties, and confess that it was often impossible for me to decide whether there was an ulcer or not.

I made my own investigations in the following manner:[1] In the Montefiore Home for Chronic Invalids, I examined without any selection whatsoever, 133 patients. Of these, 52 were tuberculous and 81 otherwise affected; but of the latter, only such patients as did *not* complain of the throat or nose. I must here mention, that not only are the following examinations subject to mistakes of statistical calculations, but a safe diagnosis was not always possible, for reasons mentioned above. Where I, however, wrote "ulceration" or "bleeding spot," these data were beyound doubt. I am convinced, that had we a better mode of exploring the naso-pharynx, we surely would have found more ulcerations.

The examinations, very difficult in some patients, in others (paralytics) impossible, were made in such a manner, that secretions were taken from the retro-pharynx. This was done by means of a piece of sterilized cotton fastened to a sterilized applicator, without touching the tongue or pharynx. The secretion was put on an object glass, examined for micro-organisms, and the result noted. After this had been done, in all 133 patients, I examined the naso-pharyngeal cavity, without in most cases, knowing the bacteriological result or the general diagnosis. I worked, therefore, as objectively as possible.

The result is as follows:

[1] They were made independent of the 20 investigations mentioned above.

No.	Name, Age, Occupation.	Length of Stay at Home.	Diagnosis.	Nasopharynx.	Microscopical Examination.	
					Tubercle Bacilli.	Other Bacteria.
1	A. L., 48, Shirtmaker.	1¼ Y.	Phthisis.	Nasopharyngeal Catarrh.	Tubercle Bacilli.	
2	L. H., 25, Cigarmaker.	9 M.	Phthisis.	Severe N.-P. C.		
3	I. F., 21, Peddler.	8 M.	Phthisis.	N.-P. C.	Tbc.	Streptococci
4	M. E., 25, Upholsterer.	10 M.	Phthisis.	N.-P. C.		Streptococci.
5	A. B., 21, Peddler.	2 Y.	Phthisis.	Pharyngitis Sicca. Rhinitis Sicca. N.-P. Hyperemia.	Tbc.	Str.
6	L. W., 51, Peddler.	7 W.	Phthisis.	N.-P. C.	Tbc.	Str.
7	A. S., 46, Peddler.	13 W.	Phthisis.	Marked N.-P. Hyperemia.	Tbc.	
8	E. R., 38, Barber.	1 M.	Phthisis.	N.-P. Infiltration similar to one on left ventricular band	Tbc.	Str. and Staphylococci.
9	D. T., 38, Tailor.	3 M.	Phthisis.	Marked Hyperemia of Post. ends of Turbinals in decided contrast to N.-P. hyperemia.	Tbc.	Str.
10	J. S., 42, Presser.	7 M*	Phthisis.	Marked N.-P. hyperemia.	Tbc.	Str.
11	I. Z., 31, Tailor.	3 Y.	Phthisis.	Marked N.-P. C.		Staphyloc.
12	A. S., 48, Ironer.	3 M.	Phthisis.		Tbc.	Str.
13	A. A., 35, Clerk.	6 W.	Phthisis.	N.-P. C.	Tbc.	Str.
14	C. E., 35, Tailor.	3 M.	Phthisis.	N.-P. C.		
15	B. K., 37, Dressmaker.	2 M.	Phthisis.		Tbc.	Str.
16	J. B., 34, Dressmaker.	2 Y.	Phthisis.	Infiltration at right entrance of tube		Str. and Staphyloc.
17	H. G., 40, Ironer.	5 M.	Phthisis.			Str.
18	J. M., 28, Tailor.	6 M.	Phthisis.	Ulceration near left tube entrance; complains of pain on right side where there are ulcers of epiglotti.		
19	M. G., 24, Dressmaker.	14 M.	Phthisis.			Str.
20	A. R., 39, Dressmaker.	1¼ Y.	Phthisis.	Ulceration, upper right part of vault, after cauterization, complains of	Tbc.	Str.

*Bedridden.

No.	Name, Age. Occupation.	Length of Stay at Home.	Diagnosis.	Nasopharynx.	Microscopical Examination.	
					Tubercle Bacilli.	Other Bacteria.
				pain in throat.		
21	J. B., 13,	3 M.	Phthisis.	Small vegetation in N.-P.		
22	C. C., 20, Tailor.	1¾ Y.	Phthisis.	Slight vegetations	Tbc.	Str.
23	D. K., 26, Hatter.	6 M.	Phthisis.	Cannot be examined.		Str.
24	H. S., 41. Peddler.	2 Y.	Phthisis.	Marked N.-P. C.	Tbc.	Str.
25	M. G.	9 M.	Phthisis Pulm.	N.-P. C.		Str.
26	D. G., 34	3 M.	Phthisis Pulm.	3 Bleeding points N.-P. C.		Str.
27	S.	5 M.	Phthisis Pulm.			
28	W. G., 22,	2 M.	Phthisis Pulm.	N.-P. C. Marked Hyperemia.		Str.
29	L.	2½ Y.*	Phthisis Pulm. Nephritis.	Cannot be examined.	Tbc.	Str. and Staphyloc.
30	D. B., 48.	2 M.	Phthisis Pulm.	Marked N.-P. C.		Str.
31	L.	4 M.*	Phthisis Pulm. et Laryngis.	Cannot be examined.		Str.
32	K.	2 Y.	Phthisis Pulm.	N.-P. C.	Tbc.	
33	P. T.	1 Y.	Phthisis Pulm. et Laryngis.	N.-P. C.		Str.
34	B. F.	1½ Y.	Phthisis Pulm.	N.-P. C.	Tbc.	
35	R. W., 24.	5 Y.	Phthisis Pulm. et Laryngis.	Marked N.-P. C		Str.
36	L. R.	2 Y.	Phthisis Pulm.			Str.
37	O.	1¾ Y.	Phthisis Pulm. et Nephitis.	Marked reddening at upper right part N.-P. C.	Tbc.	Str.
38	J. B., 26.	1¾ Y.	Phthisis Pulm.	N.-P. C.		Str.
39	L. S., 38, Presser.	7 M.	Phthisis Pulm.	Ulceration at upper right part, pain in throat and ears.	Tbc.	Str.
40	C. E., 28.	2 Y.	Phthisis Pulm.	N.-P. C.		Str.
41	M. B., 32, Tailor.	2 Y.	Phthisis Pulm.	Ulceration of posterior aspect of velum.	Tbc.	Str.
42	M.	2 Y.	Phthisis Pulm.		Tbc.	Str.
43	H. T., 41, Clerk.	11 M.	Phthisis Pulm.	Cannot be examined.		Str. and Staphyloc.
44	M. S., 30 Y.	1 Y.	Phthisis Pulm.	Ulceration at upper right part of Sept	Tbc.	Str.
45	L.	3 M.*	Phthisis Pulm.	Died.		Str.
46	T. M., 27, Cook.	5 M.*	Phthisis Pulm.	N.-P. C.		Str.

*Bedridden.

No.	Name. Age. Occupation.	Length of Stay at Home-	Diagnosis.	Nasopharynx.	Microscopical Examination.	
					Tubercle Bacilli.	Other Bacteria.
47	B.	7 M.*	Phthisis Pulm.	Ulceration to right of septum (great infiltration of right lung).	Tbc.	Str.
48	S. S., 25, Agent.	10 M.	Phthisis Pulm.			Str.
49	D. F., 31, Presser.	7 M.	Phthisis Pulm.	N.-P. C.		Str.
50	N. H., 24, Printer.	1 Y.	Phthisis Pulm.	Marked reddening N.-P. C.		Str. and Staphyloc.
51	A. C., 36, Buttonhole Maker.	7 M.	Phthisis Pulm.	Marked N.-P. C.	Tbc.	Str.
52	N. B., 36, Peddler.	1 D.	Phthisis Pulm.	N.-P. C.	Tbc.	Str.
53	M. G., 44.	3½ M.	Multiple Sclerosis.			
54	C. H., 48.	2 W.	Melancholia.	Marked Anemia N.-P. C.		
55	S. F., 23,	3½ M.	Mitral Insufficiency.	Marked N.-P. C.		
56	A. B., 49.	4 Y.	Hysteria.	Slight bleeding ulcer in middle of pharynx; marked N.-P. C.		Str.
57	I. S., 18.	3 W.	Mitral Insufficiency.		Tbc.	Str.
58	L. L., 26, Domestic.	3 M.	Functional Disease.	Marked N.-P. C.	Tbc.	Str
59	E. H., 34.	5½ Y.	Multiple Sclerosis.			Str.
60	K. G., 58.	2 Y.	Diabetes.	N.-P. C.		
61	R. G., 17,	3 M.	Chlorosis.	N.-P. C. Pharyngit. Sicca.		Str. and Staphyloc.
62	S. U., 63.	10 M.	Diabetes.	N.-P. C.		Str.
63	H. R., 5.	5 M.	Bronchitis Chronica.			Str.
64	B. M., 17.	7 M.	Poliomyelitis Ant.	N.-P. C.		Str.
65	L. O., 18.	10 M.	Asthma.			Str. and Staphyloc.
66	M. L., 20.	11 M.	Atrophia Musclorum Progress.	N.-P. C.		Str.
67	S. F., 70.	2 Y.	Nephritis Chron.	Uvula bifida.		
68	F. S., 40.	1 Y.	Hemiplegia Dextra.	N.-P. C. Pharyngit. Sicca.	Tbc.	Str.
69	A. S., 25.	2 Y.	Mitral Insufficicency.			
70	M. P., 46.	11 M.	Aortic Aneurysm			

*Bedridden

No.	Name. Age, Occupation.	Length of Stay at Home.	Diagnosis.	Nasopharynx.	Microscopical Examination.	
					Tubercle Bacilli.	Other Bacteria.
7	M. L., 31.	5 Y.	Tabes Dorsalis.	N.-P. C.		
72	R. R., 50.	3 M.	Hemiplegia Dextra.			Str.
73	L. S., 45.	3 Y.	Functional Disease.	Cannot be examined.		Str.
74	A. K., 48.	8 Y.	Hysteria.			
75	B. C., 50.	1½ Y.	Functional Dis.	Slight bleeding pt. in N.-P., N.-P. C.		Str.
76	A. K., 50.	4 Y.	Hemiplegia Sinistra.			
77	F. H., 52.	5 Y.	Emphysema.	N.-P. C.		
78	I. S., 25.	3½ Y.	Functional Dis.	N.-P. C.		Staphyloc.
79	C. M., 60.	4 M.	Nephritis.	Bleeding point near right tubal entrance.		Str.
80	S R., 25.	4 Y.	Hystero-epilepsy.	N.-P. C. Swelling of Post. ends of turbinal.		Str.
81	A. M., 45.	1 Y.	Diabetes.	Marked N.-P. C.		
82	M. M., 58.	4 Y.	Nephritis.	Whole N.-P. filled with blood and muco-purulent masses.		
83	I. W., 51, Book-keeper	9 M.	Bronchit. Chron.	N.-P. C.		
84	B. A., 34, Dressmaker.	8 M.	Bronchitis.	N.-P. C.		Str. and Staphyloc.
85	I. S., 56, Tailor.	1½ Y.	Bronchitis. Emphysema.			Str.
86	I. H., 35, Butcher.	3 M.	Syphilis (?).			Staphyloc.
87	M. K., 34, Painter.	3 W.	Neurasthenia.	Marked N.-P C.	Tbc.	Str.
88	H. M., 53, Presser.	2 W.	Emphysema.			Str. and Staphyloc.
89	R. G., 42.	2 Y.	Tabes.	N.-P. C.	Tbc.	
90	F. P., 25.	1 Y.	Arthritis Deform.	N.-P C.		Str.
91	A. R., 25.	2 M.	Catarrh. Gastric. Chron.	N.-P. C.		Staphyloc.
92	C. L., 25.	6 W.*	Hysteria.	Slight vegetations		
93	K. B., 66.	6 M.*	Bronch. Chron. Senile Weakness	Cannot be examined.		Str. and Staphyloc.
94	P. K., 33.	2 M.*	Amyotroph. Lateral Scleros.	N.-P. C.		
95	F. N., 61.		ArthritisDeform.	Cannot be examined.		Str.
96	M. B., 81.		Hemiplegia.	Marked reddening of N.-P.		

*Bedridden.

No.	Name, Age. Occupation.	Length of Stay at Home.	Diagnosis.	Nasopharynx.	Microscopical Examination.	
					Tubercle Bacilli.	Other Bacteria.
97	G. P., 31.		Arthrit. Deform.	N.-P. C. Several bleeding points.		
98	P. G., 73,		Bronch. Chronic Senile Weakness	Cannot be examined.		Str.
99	S. K., 19.	9 M.*	Multiple Neuromata.			
100	A. T., 48,	2½ Y.*	Arthrit Deform.	Cannot be examined.		
101	K. J., 46.	9 Y.*	Tabes.	N.-P. C.		
102	R. W., 49.	8 Y.	Anus Preternatural.	Some bleeding points; N.-P.C.		
103	R. K., 27.	4½ Y.*	Juvenile Muscular Atrophy.	Marked reddening; erosions on Post. aspect on uvula.		
104	P. H., 65.	2½ Y.	Arthrit. Deform.	Marked reddening; N.-P. C.	Tbc.	Str.
105	L. F.	2 Y. Bea ridden 2 Yrs.	Progress. M'sc'l. Atrophy. Phthis. Pulm.	Died.	Tbc.	Str.
106	F. B., 75.	2 Y.*	Senility.	Cannot be examined.	Tbc.	
107	M. S., 52.	2 Y.*	Left Hemiplegia.	N.-P. C.		Str.
108	I. S., 19.	2 M.	Hydrocephal.	Cannot be examined.		
109	J. G., 90.	2 Y.	Senility.	Cannot be examined.		Str.
110	E. M., 60.	1½ Y.*	Hemiplegia.			
111	F. W., 65.	6 Y.	Extensive Burning.	Cannot be examined.		Str.
112	S. C., 70.	4 Y.*	Hemiplegia.	Cannot be examined.		Str. and Staphyloc.
113	M. H., 19.	2 Y.*	Myelit. Ant.	Cannot be examined.	Tbc.	
114	A. H., 42.	7 Y.*	Acromegaly.	N.-P. C.	Tbc.	
115	F. B., 88.	6 Y.	Senility.		Str.	
116	B. R., 70,	1½ Y.*	Fract. Femoris.	Cannot be examined.		
117	L. H., Presser.	10 W.	Neurasthenia.	N.-P. C.		
118	A. H., 22, Tailor.	7 M.	Cirrhosis Hepatis.	N.-P. C.		
119	J. D., 37, Architect.	15 M.	Ataxia cerebell Heredit.	Marked reddening. N.-P. C.		
120	M. C., 35, Ruber Wkr.	5 Y.	Bronchit. Chron.	N.-P. C.		Str.
121	J. E., 26, Dressmaker.	16 M.	Mitral Insufficiency; Stenosis, etc.	N.-P. C.		Str.

Bedridden.

No.	Name, Age, Occupation.	Length of Stay at Home.	Diagnosis.	Nasopharynx.	Microscopical Examination.	
					Tubercle Bacilli.	Other Bacteria.
122	R. L., 30. Cigarmaker	14 M.	Neurasthenia.			Str.
123	M. S., 70, Peddler.	14 M.	Emphysema, etc	N.-P. C.		
124	H. A., 66, Clerk.	21 M.	Tabes Dorsal.	Marked N.-P. C.		Str.
125	W. H., 54. Clerk.	4 Y.	Tabes Dorsal.			
126	L. L., 54, Waiter.	4 Y.	Hemiplegia Sinistra.			
127	P. E., 65, Shoemaker.	7 M.	Emphysema, Asthma, etc.	Slight N.-P. C		Str. et Staplyoc.
128	S. K., 65, Peddler.	2 Y.	Pancreatic Cyst,			
129	A. S., 26. Cloakmaker.	15 M.	Fnnctional Hemiplegia.	N.-P. C.		
130	A. H., 58, Peddler.	1½ Y.	Mitral Insufficiency.	Cannot be examined.		Str.
131	I. L., 21, Tailor.	4 W.	Neurasthenia.			
132	J. L., 53, Waiter.	1 W.	Pachymeningit Hypertroph.	N.-P. C.		
133	F. G., 69.	5 Y.	Advanced Age.	Marked N.-P. C.		

Regard these numbers closer, and we find that out of 52 tuberculous patients, 21 had post-nasal catarrh to a greater or lesser degree. In 24 cases tubercle bacilli were found, and in 7 cases, ulcerations. One might imagine, that a number of these patients were in an advanced stage of pulmonary tuberculosis, and that tubercle bacilli and ulcerations were secondary. But, finding that out of 81 non-tuberculous patients, 9 had tubercle bacilli in the naso-pharynx, and furthermore, there being no trace to be found anywhere else in these 9 patients, and when finally, experience recurring yearly at the Montefiore Home teaches us that *some of such patients later on fall victims to tuberculosis*, we are, therefore, forced to *accept the supposition that in these cases the naso-pharyngeal cavity is the primary focus for general tuberculosis.*

I saw ulcerations 7 times in tuberculous patients, and once in non-tuberculous. Besides, I noticed quite frequently (eleven times), an intense hyperaemia in the naso-pharynx, which contrasted strongly in consumptives with the pale, anaemic condition of the posterior parts of the nose and the velum. Sometimes I saw real infiltrations, much resembling those in the larynx. The retro-nasal catarrh was found 21 times in the phthisical, and 34 times in non-phthisical patients.

The frequency of hemorrhages from the naso-pharynx was peculiar. While I could see them only once in tuberculous patients, they were present five times in the others. It was remarkable that in none of these six cases were tubercle bacilli found, as would be expected a priori. I can explain it only in this way: If the bacilli are not imbedded too deeply in the tissue, the flow simply washes them away, thus offering a certain safety against the invasion of the same. The following three cases, which I had occasion to observe more thoroughly in private practice, belong to this category of bleedings from the naso-pharynx, and I will here narrate them:

CASE 1. Miss E. B., nurse, 31 years of age, fell sick with general complaints and a temperature of 105° F. This condition lasted for two days. On the third day she began spitting blood, which occurred each time she hawked. These complaints continuing for six days, patient, whose sister had died of consumption, grew alarmed and consulted me. On examination of the somewhat corpulent and well-nourished patient, I found the naso-pharyngeal cavity covered with crusts. Blood was found on different parts of the cavity and of the pharynx, without my being able to discover the origin of the bleeding, even

after cleansing the parts. It was certain that the bleeding came from the naso-pharynx. Larynx and lungs were normal. The patient told me that she had to hawk frequently and strongly, especially in the winter. I gave her some astringent gargarism, and applied Lugol's solution daily to the retro-pharynx. The next day, I was enabled to recognize, in the neighborhood of the left tube, an outspoken ulceration, out of which at different places blood oozed slowly. In its vicinity was soft spongy tissue, very painful to the touch. The secretion of mucus was excessive; under the said treatment, the bleeding having stopped completely in about six days, no signs of an ulceration could be seen after fourteen days. It was evident that the latter had been produced by strong hawking, tearing off of crusts, etc., most likely assisted by an acute inflammation in the retro-pharynx. Under such circumstances a general infection from this place is only a question of time, and I believe that it will occur sooner or later, if the catarrhal affection is not removed.

That the coagulating blood, however, sometimes (or frequently?) becomes a protecting cover, the following case seems to prove:

CASE 2. Mrs. B. M., 25 years old, had one child which died after an operation. For the last two years she spits blood. She has a sensation as if there were something sticking in the throat, causing her to cough. The blood comes usually during such attacks, sometimes, however, spontaneously. All this is independent of the seasons of the year. Patient is a thin, anæmic, weakly person, who was never sick before. She told me that her sputum had been examined repeatedly for tubercle bacilli, but always with a negative result. This fact was confirmed by her former physicians. Neither were any tubercle bacilli found during my treatment. On examination, I found the lungs perfectly free, but an extraordinarily strong rhinitis and pharyngitis sicca, with a mass of inspissated crusts and scabs in the retro-pharynx. Having much work for weeks in removing these, I could not explore the retro-pharynx thoroughly, the patient being so unruly. She came twice a week to see me, and lost almost no blood, being regularly treated; but staying away for a week or longer (she lived out of town) she bled afresh, and again the terrible dryness occurred. She told me she had on one occasion, two days previously, lost a cupful of blood, coming from mouth and nose. At this visit, I could plainly see an elongated ulceration at the vault of the pharynx, almost reaching anteriorly to the septum. I took secretion from this spot, but no tubercle bacilli were found. I must, however, remark that this was no proof, the patient constantly closing her velum palati, thus probably removing the desired secretion from my instrument. Cocaine only made her gag constantly. I then cauterized with a 50 per cent. solution of nitrate of silver and treated her as before. After going for ten weeks to the seashore, where she took daily baths, she felt well during the following winter. Her rhino-pharyngitis sicca is still there, but without inconveniencing the patient. The bleeding ceased completely eight months ago. Not so favorably ended

CASE 3. Miss H. B. is about 24 years of age. An older sister, suffering for years from pulmonary phthisis, had been nursed by her until lately. She was sent to me by her family physician, on account

of spitting blood now and then. She told me she felt the blood running down from above, behind the nose; then she had to expectorate, the amount of blood never being more than about half a teaspoonful. Patient is well nourished, having a well developed thorax, lungs free, slight laryngitis, outspoken retro-nasal catarrh.

At about the centre of the pharyngeal vault, there is plainly visible a small ulcer with grayish-white exudation. The bleeding vessel is not visible, nor does the examination of the expectorated sputum give any result. But *in the secretion removed from the ulcer, several tubercle bacilli were found.* After I had seen the lady several times, she left the city, to return again after seven weeks. Her subjective symptoms are the same, but objectively the status has changed materially. While the ulcer appears to be enlarged only a little—perhaps also somewhat deeper—yet over the right anterior portion of the chest, dullness on percussion is elicited, reaching down as far as the second rib. There is also bronchial respiration and crepitant rales. On the left side of the chest, anteriorly and above bronchovesicular breathing is heard. In the secretion of the ulcer, as well as in the sputum, tubercle bacilli were now found. Patient leaving the city soon after, I know nothing about her further condition.

From all these investigations it is evident how frequently tuberculous processes develop in the naso-pharynx, and now the question arises: How did they originate there? To answer this, we must return to the retro-nasal catarrh, and then we will attempt to prove that this pathological factor is the fundamental cause and place from which pulmonary tuberculosis arises.

Under what conditions does retro-nasal catarrh occur? In the text-books you find many explanations. Thus, colds, inhalation of dusty atmosphere, too hot food, and many other causes are given, but all this does not cover what I should like to determine as the principal ætiological factors. As such, I must mention again and again: 1st. Lack of fresh and constantly changing air, and, 2d. low amount of atmospheric humidity. Right here in New York, the conditions for the study of these two points are extraordinarily favorable. To mention only a few examples: There are a great number of business places in the city, where thousands of workingmen are employed in the most densely populated sections, in which the masses are more closely crowded than in any other city of the world. These are mostly tailors, operators and cigarmakers, doing their modern slave work, year in and year out, in small, low rooms, packed together by the score. For the last eleven years I have seen these people daily in the German Polyclinic, and the uniformity of their complaints, and the similarity of the objective state

is astonishing. When in a pale, care-worn, overworked man I find in the naso-pharyngael cavity the characteristic symptoms of a chronic dry catarrh, I usually do not need to ask him what his occupation is; I know at once that he is a tailor or operator. The cigarmakers show the same catarrh, and belong to the same category, generally having in the nose and pharynx acute exacerbations, produced by tobacco dust. Other laborers, struggling under similar unhygienic conditions, work more alone, and are not constantly exposed to the air of the room which is poisoned by scores of other co-workers. All these people, however, are lacking in the most important elements for the sustaining of health, *i. e.*, fresh air. Besides, in the air inhaled by them, the necessary amount of humidity is missing. This last point I consider of great importance, and I think I have proved the correctness of this view before. The fact remains, that in all those persons exposed to these noxious influences, we find extraordinarily often dry catarrh of the naso-pharynx. Another fact to be mentioned—which I have seen only too often in the German Polyclinic—is that among these people a frightful percentage acquire pulmonary tuberculosis.

And now let us look into the conditions favorable for the spreading of tuberculosis. We shall soon recognize that this, too, increases with the increasing density of the population, and through this the deterioration of the air. When we place at the beginning of this chapter the sentence, "Tuberculosis is essentially a disease of social culture," we will more readily understand many things.

It has been proven that among the nomads and wild tribes tuberculosis was unknown. It does not occur among the Indians of North America so long as they live in their wild state. Becoming more civilized, they are brought into reservations. Here, in their covered quarters, tuberculosis develops in a terrible manner. Surely you cannot blame the Indians when they refuse to buy civilization at such a high price, and frequently rebel. The first settlers of this country stand upon a higher plane than the wild-living Indians. While tuberculosis was unknown among the latter, its occurrence among the former is already a fact. Rush said, in 1789, that tuberculosis is almost unknown among those citizens of the United States who live in the first stage of civilization, and who, of late, have received the name of the "first settlers." "Almost unknown"

means that it was little known among these settlers, but that it did occur—though seldom.

And now we come to the acclimated resident of the country, of which Rush, 100 years ago, said that tuberculosis was rarer in the country than in the city, *i. e.*, that its occurrence was a well-known fact. These people probably remained for a longer time in their residences, most likely during the greater part of the cold season, getting slowly accustomed to the longer sojourn in closed rooms.

In accordance with these views are those of August Hirsch,[1] who says: "It is an undisputed fact that tuberculosis occurs especially frequently in countries with a densely living population; the frequency of the disease, ceteris paribus, being in a direct ratio to the density of the population, and finding its maximum in large overcrowded cities. In contrast to this, it occurs more rarely in flat land, and still more rarely in nomad-like, or wild-living races."

With the progress of civilization a sedentary habit developed in many, and with this a most one-sided, but always extremely deficient, bodily exercise in many vocations. These detriments have already been mentioned by Rush, and later on by Clark. According to Clark, the effect of a sedentary habit is a very detrimental one, there being, perhaps, nothing else in his belief that exercises such a decided influence upon the development of tuberculosis than the lack of fresh air and *bodily exercise*. His great experience led him to the full conviction that a sedentary habit was one of the most potent causes of tuberculosis, it being in the higher classes of society, the principal cause for the greater frequency of tuberculosis among the female sex. August Hirsch, also, with his great experience, comes to the conclusion that the conditions under which a great number of laborers must work, are amongst the most essential causes for the genesis of the tuberculous dyscrasia. These conditions are the permanent sedentary habit, in closed, badly ventilated quarters, filled with all sorts of effluvia, which many laborers find not only in their workshops, but, to a higher degree, in their own homes.

That the increase of affections of tuberculosis is a steady

[1] Aug. Hirsch: Handbuch der Historisch. Geograph. Pathologie. Erlangen, 1862, p. 84.

one will be evident to many, in spite of assertions to the contrary. In the United States, according to Bratton,[1] 300,000 people suffer from it annually, *i. e.*, one among 200—100,000 dies of it yearly. In the City of New York the ratio during the last ten years was as follows:

DEATHS ANE DEATH RATES FROM TUBERCULOUS DISEASES.

Year.	*No. Deaths.*	*Population.*	*Rate Per 1000.*
1886, ...	7,310	1,437,170	5.09
1887, ...	6,911	1,479,143	4.67
1888, ...	6,073	1,522,341	3.99
1889, ...	6,041	1,566,801	3.86
1890, ...	6,409	1,612,559	3.97
1891, ...	6,109	1,659,654	3.68
1892, ...	6,061	1,708,124	3.55
1893, ...	6,163	1,758,010	3.51
1894, ...	5,720	1,809,353	3.16
1895, ...	6,283	1,879,195	3.34

These data, which I received from the Board of Health, through the kindness of Dr. Roger S. Tracy, show by far a greater mortality of tuberculosis in New York than in places under conditions hygienically more favorable. Thus, Cornet gives a mortality of tuberculosis of 3.1 per 1,000 living, for the whole State of Prussia. (The death rates for the City of Berlin were not at my disposal.) This was for the year 1887. In consequence of prophylactic measures, the mortality fell until it amounted to 2.5 per 1,000 in 1893. We see that a similar decrease exists also here, as the mortality for 1886 (5.09 per 1,000) fell in 1895 to 3.34 per 1,000, and we acknowledge with pleasure the work of our Board of Health in this.

Notwithstanding the decrease of mortality, in the last period, the numbers are immensely high and the question is in order, whether there existed similar conditions one hundred years ago, when we did not have cities with millions of inhabitants and tne respective number of factories? Did we know the like at that time, when habits and vocations did not confine us all year round to the house? Decidedly not. We shall find this corroborated when we take into consideration the various occupations. Fishermen,[2] and men who ply their calling on the sea in open boats, and sleep in these open boats, are notoriously exempt from tuberculosis and lung diseases generally; while merchant seamen succumb to tuberculosis

[1] W. D. Bratton: The Arid Region Sanitarium for Tuberculosis Patients. *N. Y. Med. Journal*, 1896, p. 3.

[2] I follow here the data of Bratton and my own experience with a few hundred fishermen, which is in accordance with the above.

in the same proportion as the rest of the population. Is this a coincidence? According to Bratton, this misproportion comes from the fact that there is a forecastle in the merchant service, where men live and sleep, packed together like sardines, and where a single consumptive can make it dangerous for all the crew. This forecastle is a narrow, damp and dark place, "where the sunshine never penetrates, where cleanliness is rare and ventilation unknown, and where the conditions for the spread of infections are perfect." The ranks of the tuberculous are thus recruited, where it would be easiest to prevent the spread of the disease.

Similar are the strides of tuberculosis in the jails, orphan asylums, monasteries, etc., where we have more statistical material. In this respect, Cornet[1] has made thorough investigations. He found that almost half of all death cases in the penitentiaries came from tuberculosis, and that the mortality from tuberculosis among the inmates was from two to three times as large as among the free population; while deaths, from other diseases, are *not* more frequent here than among the free population. He calculates the average duration of tuberculosis from one and a half to two and a half years. He found that during the first half year, the tenth part of all death cases of tuberculosis occurs; during the first year, the fourth part; over half of all, however, at the end of the second year of detention, *i. e.*, "at a time when the prisoners could hardly have acquired the disease in the institution." There are different points that are to be mentioned in contradiction to this last remark: 1st. If, according to Cornet, tuberculosis occurs so much more frequently in penitentiaries, how did it get there, if not acquired during the detention? Are we, perhaps, to suppose that those having a bad character—thieves, burglars, etc.,—suffer more from tuberculosis *beforehand?* 2d. Cornet mentions that, in his estimate, those imprisoned before trial had not been added. Well, even imprisonment before trial is confinement, which is almost as detrimental to the organism as the latter imprisonment. If we, therefore, take the average duration between imprisonment and conviction as a period of from six to twelve months, it changes the situa-

[1]George Cornet: Die Tuberkulose in den Strafanstalten. Zeitchr. fuer Hygiene, 1891, p. 455.

tion materially. 3d. v. Ziemssen[2] accumulated experience differing from Cornet's. He considered it very remarkable that the mortality from consumption reaches its maximum only in the latter years of imprisonment. We see, therefore, says he, that it is not a simple infection inside of closed quarters, occurring as soon as the condemned enters the penitentiary, but that, in the majority of cases, a longer degradation of the constitution is necessary, in order to make the organism suitable for the settlement of bacilli.

The experiences of both these men do not, therefore, coincide. The fact is, that Cornet contradicts himself later on, in speaking of the Catholic nurses (sisters). It is known (Cornet, v. Ziemssen, Bergeret, I. Straus,) that the mortality from tuberculosis is an immense one among these sisters—yes, that it is greater than in any other vocation. And yet the effects of infection do not show themselves in the first years. Although, at the time of their novitiate, the sisters have the hardest tasks to perform, and many privations are imposed upon them, the mortality from phthisis at this period is almost nothing. Only later, when their duties are lighter, the mortality from tuberculosis increases (Cornet).

It seems very plausible when asserted that those prisoners, who work more in the open air, have a lower death rate; but I cannot understand if, as an explanation, the following is added, that this happens through a possibly diminished infectiousness. The *possibility* of infection is by no means the most important factor in this question, else, according to the report of Williams, we could not understand why the physicians, nurses and officers of the Brompton Hospital for Consumptives are not more frequently taken sick with tuberculosis than the inhabitants of populated cities.[2]

We could not understand why with idiots kept in separate cells the mortality from tuberculosis should be as

[2]H. v. Ziemssen: Klinische Vortraege (8 Vortrag, Aetiologie der Tuberkulose), Leipzig, 1888.

[2]These data are apparently in contrast to our experience at the Montefiore Home. The contradiction is, however, only an apparent one, as the Montefiore Home and Bellevue Hospital of this city are exceptions to the other hospitals. The class of patients treated in these two institutions is such a miserable one that, in spite of very strict regulations, cleanliness is absolutely impossible. The patients even expectorate on the floors of the wards and halls, without a possibility of its being prevented. That in such manner the dried sputum is easily inhaled, one can well understand.

great as it really is. First of all, we could not understand why the isolated prisoners should succumb more readily to tuberculosis than those who are kept in company with others, as it has been proven by the well-known article of Baer. Here the possibility of infection by contact with other pulmonary patients is a minimum, and still the high mortality rate!

The causes are the same as those mentioned before. They are probably the same which produce pearl-disease in many cows. It is known that the cattle in low regions are markedly affected with tuberculosis, because they are now principally kept in stalls, and are not given any exercise in the open air. The cattle inhabiting high altitudes are, according to Eichstaedt,[1] almost free from tuberculosis, so that it has been proposed to introduce the latter, as a substitute for the former. But, I agree with Eichstaedt when he says that these animals, transported from higher regions, would also soon fall victims to tuberculosis.

It is also known how great is the mortality of monkeys kept in cages, in consequence of tuberculosis. This has been proven by autopsies upon some anthropoids.

If deficient nutrition is held responsible for the development of tuberculosis, one may also take this into consideration, *i. e.*, only as an accessory cause in some cases. If, however, the necessity of being exposed to the inclemencies of the weather—as is necessitated by some vocations—is also added to this category (as Aufrecht,[2] for example, still does), it is decidedly incorrect. I believe just the opposite to be the case. Particularly those persons who are exposed to storm, and all kinds of weather, show the lowest mortality of phthisis. As proof, I should like to mention the above quoted fishermen, who sail around on the seas for months in small open boats, without acquiring this disease. Still more important is the mortality in the army.

Destrée and Gallenaerts found that in Brussels, out of 149 deaths, there were 27 laborers who had been occupied in the open air, 45 persons who had led sedentary lives, 66 waiters, and only 11 farmers.

Furthermore, according to Oesterlen, there were in the canton Geneva, among a thousand deaths from tuberculosis, 534 in the city and 466 in the country. Finally, in

[1] Rud. Eichstaedt; Die Tuberkulose. Berlin, 1884, p. 25.
[2] Aufrecht: Die Lungenschwindsucht. Magdeburg, 1887, p. 28.

Belgium there died from 1856 to 1859, inclusive, 4.1 of phthisis of 1,000 living in the cities, and 3.6 of those living in the country.

If, then, one reads that Kirschner[1] for a period of five years, for the Prussian Army, has counted a tuberculosis mortality of *0.83 per 1,000*, one can no longer hold the changes in the weather responsible for this disease. The farmer is probably more exposed to wind and weather than the waiter in a café, and the fisherman in his open boat more than the State prisoner. And the German soldier is, perhaps, more exposed than any other soldier, and yet the mortality there is extraordinarily small. True, the excellent rules of cleaning the rooms, ventilation, and a mass of other hygienic measures are of great importance. Accordingly the Prussian, resp. German, Army holds the first place in this regard. Where, however, these rules are disregarded, where the barracks are too small for the number of men, where the single rooms are overcrowded, there the mortality from tuberculosis will be not only as large as among the civil population, but still larger.

In proof of this, I mention the report of the Sanitary Commission of the English Army for the year 1858. It states[2] that the unusually large mortality from tuberculosis among the soldiers undoubtedly depends upon the overcrowding of the barracks and insufficient ventilation. "Previous to that inquiry, the cubic space per soldier in the barracks of the Foot Guards amounted only to 331 cubic feet, and the phthisis mortality was as high as 13.8 per 1,000. In the Horse Guards, on the other hand, with a space per man of 572 cubic feet, the mortality from phthisis did not exceed 7.3 per 1,000. It was found that phthisis prevailed at all stations and in the most varied and healthy climates, the vitiated air in the barracks being the only condition common to all of them. In consequence of this excessive mortality, the Commissioners recommended that the cubic space allowed per man in the barracks, should be increased and the ventilation improved, with the result that, from the time their recommendations were acted upon, the number of phthisical cases occurring at all these stations has materially diminished."

---

[1] M. Kirschner: Ueber die Notwendigkeit und die beste Art der Sputumdesinfection. Zentralbl. f. Bacteriologie, 1891, p. 5.

[2] See George Wilson: Handbook of Hygiene, London, 1886.

In the French Army, even now, the mortality from consumption is a big one—in these times of peace! Probably the hygienic conditions in the barracks are such that they can be very much improved upon. For, in spite of insufficient nourishment, bad weather and all the manifold deprivations imposed upon soldiers during war, the mortality from tuberculosis is insignificant in comparison with times of peace, as I take it from the work of I. Straus.[1] Just this last fact, which—if I am not mistaken—has been stated already by Villemain, is such a striking proof against the insane ideas regarding the greater probability of infection in bad weather that it alone ought to be sufficient to remove this delusion.

I will only refer briefly to the investigations made by Dr. F. Welz in the hygienic laboratory in Freiburg, upon the numbers of bacteria in the air. He showed that an increase of bacteria takes place toward the warmer season, a decrease in *winter*, and in *rainy weather*. So, from this investigation also, "bad weather" may be considered rather healthy.

Peculiar are also the respective conditions in China. Tuberculosis in the "yellow" race has been studied thoroughly by Dr. Ernest Martin, Physician to the French Legation in China. According to him, it is to be considered as proven that *until now* tuberculosis rarely prevailed in China. It is true that in many cities the population is a large one, but in none are to be found such overcrowded districts as in some parts of Paris.[2] Prolonged imprisonment does not exist in China, so that, according to Martin, the principal causes of tuberculosis is excluded, although you find a great deal of dirt and uncleanliness there.

We have seen that with the progress in culture, tuberculosis advances in the same ratio. We have no data of the historical development of nasal diseases, to which we will now again revert. From certain facts only can we draw conclusions upon the non-existence of nasal affections in years gone by. Thus, deviations of the septum narium hardly exist among the wild Indians of North America. Such deformities are also rare in other primitive people; while they show such a large frequency among the highly

[1] I. Straus: La Tuberculose et son Bacille. Paris, 1895.

[2] What should then be said of the so-called tenement districts of New York City?

civilized and luxuriously-living people, that they have almost become the rule. From these facts it is not difficult to deduce the presence of other nasal and pharyngeal affections.

Another proof that sounds rather odd, which, however, is fully justified, is the history of the *handkerchief*. A priori, the use of a handkerchief is to be considered as something abnormal. The nasal secretions should be just so profuse as constantly to keep the whole mucous membrane moist, but no more. If the secretion becomes so abundant that it flows off anteriorly and posteriorly, if not otherwise removed, then we have a pathological condition. I remind the reader of the German words "Schnupfen" and "Schnupftuch." Everybody who has to use such a "Schnupftuch"—handkerchief—has a pathological nasal mucosa. I do not know how many normal noses we could find from such a point of view; but this does not change the facts.

Quite in accordance with this last view, are the ideas of Prof. Justus Gaule. In an article on the physiology of the nose, the first part of which has just appeared, the author[1] remarks: "The frequency of a flow of secretion from the nose makes us forget that this condition is an abnormal one. Well understood, the nose is always a secretory organ, as its mucosa has glands whose function it is to secrete. This secretion, however, should be made use of on the mucosa itself, partly to throw off humidity for the inspired air, and partly for the nutrition and preservation of the epithelium. The water in some measure evaporates, the solid parts being absorbed. As soon, however, as this secretion is present in abundance, and is discharged from the nose, it becomes an excretion, and that is not physiological."

Independent of one another, Prof. Gaule and the writer have come to the same conclusions; the former from a physiological standpoint, the latter from a clinical one.

If we can depend on the writings of Hans Boesch, handkerchiefs had not been used even up to the end of the fifteenth century, although a few of their kind existed. With the ending of the middle ages and the beginning of the new era, with the growth of culture, an increase of "colds" set in, so that handkerchiefs were more and more

[1] Paul Heymann's Handbuch der Laryngologie, 5. Lieferung, III Bd., p. 155.

in use. Thus, the Wuerzburg vicar, Paul Baron v. Schwarzenberg, left in 1575, among other things, eight handkerchiefs, which, at that time, represented a great fortune. It is, therefore, easy to understand why they were not used by the masses.

The following communication, whose author is unknown to me, is of interest. We learn from it that up to the reign of the Empress Josephine, wife of Napoleon the First, a handkerchief was considered such an indecent article, that nobody had dared to make use of it in the presence of others. Even the word handkerchief was carefully avoided in refined conversation. An actor who would have attempted to use a handkerchief, even at the most tearful theatrical moments, would have been hissed and hooted from the stage without compassion or compunction. It was only in the beginning of this century, that a celebrated actress, Mademoiselle Duchesnois, risked appearing on the stage with a handkerchief in her hand. But during those scenes in the drama where she should have referred to this handkerchief, she did not find enough courage to call it by its proper name. She called it "airy tissue."

A few years later, at the performance of a Shakespearian play, translated by Alfred de Vigny, the word handkerchief was for the first time mentioned on a stage; but a cry of indignation went through the whole theatre on account of this innovation.

It is doubtful whether, even at this period, the French ladies would carry handekrchiefs, if the Empress Josephine had not given the signal for its use. But the march of victory of the handkerchief has not only passed the great road from the Empress Josephine to the youngest country girl of the present time; it has also affected the whole male population. There must, therefore, have arisen important reasons for its necessity.

In the foregoing paragraphs we have seen that wherever nasal diseases, and especially retro-nasal catarrh, develop, there is also created a good soil for the development of tuberculosis. Whether this be in the New York tenement houses or in the penitentiaries, in nunneries secluded from the world, or in badly ventilated barracks, wherever not enough fresh air is given to man, he perishes from tuberculosis. The denser the population, the worse. Man, then, inhales again and again the *prerespired air*, or, as it has

been called by others, the *ruminated air*, and as this is deficient qualitatively and quantitatively, the unfortunate dies of inanition of the respiratory organs, which M. Peter very correctly compares with the inanition of digestion.

"Donnez-moi un marais," says he, "plus un organism humain, et je vous rendrai une fièvre intermittente; eh bien! donnez-moi une grande ville, avec son hygiène dépravée, et je vous rendrai une population de tuberculeux."

The proof of the direct connection of nasal diseases with tuberculosis was made by Solly.[1] He examined 200 cases of tuberculosis, without discrimination, just as they came under his treatment. Of these 200 cases, 56 had affections of the nose and 61 affections of the larynx. Among the 56 nasal affections, there were 24 cases where the *right* side of the nose was affected. Out of these 24 cases, 17 had the lung of the right side affected primarily and principally. In one case the left lung, and in six cases both lungs were equally affected. There were then 14 cases where the *left* side of the nose was diseased. Among these there were 8 with primary affection of the left lung, 4 with such of the right, and two with equal affections of both lungs. *The lung affections, therefore, were in 65% of the nasal cases, on the same side as that of the nose.* Whence comes this peculiar coincidence? A direct continuance of the disease can be excluded a priori. Hindered nasal respiration undoubtedly influences diseases of the chest. It is impossible to believe that this could directly influence the current of air passing into one bronchus, more than that of the other side. Solly, therefore, is inclined to accept a congenital weakness of that side. As valuable as his investigations are for our purpose, as impossible is it for us to agree with the last assertions. On the contrary, such numbers just force us into the belief of a direct connection, though we may not now be able to explain it satisfactorily. However, we shall at least make the attempt.

I can corroborate the observations made by Solly, although I am unable to give any statistical evidence. Only one case I will here mention, as it is still fresh in my memory:

Five years ago I treated a lad, 14 years of age, for an

[1] S. E. Solly: The Relation of Chronic Nasal and Laryngeal Diseases to Pulmonary Tuberculosis. *Jour. of the Am. Med. Ass.*, 1894, p. 427.

outspoken atrophy of the left nostril, with formation of crusts. His uncle had died of pulmonary tuberculosis. The boy's throat was at that time, according to my case-book, well built and perfectly healthy. Some time thereafter the boy left me in a somewhat improved condition. Three weeks ago he returned to me. He said he had been employed as a bookkeeper for the last two years. He was coughing, feverish, without appetite, etc. He is now a tall young man of 19, with an outspoken paralytic throat, showing undoubted tuberculosis of the left apex. It struck me how much the form of this thorax had changed. The crusts in the left nostril were very scant, but a strong retro-nasal catarrh hade developed in the meantime. May this one example suffice for the present; perhaps more of it later.

Let us now go to the *pathologico-anatomical consideration* of this question. According to our present experience, there is no doubt that the infection with tuberculosis most frequently takes place through the respiratory organs. But I agree with Ponfick, with whom, by the way, Ziem also coincides, when he declares that the lungs can no longer be looked upon as the principal organs for the entrance of the tuberculous poison. To me it was always incomprehensible how the tubercle bacillus, during respiration, should penetrate the many tortuous respiratory passages, to finally build its nest at the apices of the lungs, which are so difficult to reach. Why do not other microscopic particles, inhaled in the air, do the same? Why does not soot, for example, enter not only into the nose, but also into *all* parts of the lungs? If we suppose that the tubercle bacilli are drawn away mechanically by the air current, I will not admit that, when inhaled in moderate quantities, they reach the apices of the lungs without their progress being previously checked. I once more refer to the investigations of Arnold, Kayser and Hildebrandt: Whether dust or bacteria had been inhaled, was a matter of no account. So long as breathing was continued through the nose, the particles of the air were retained in the nose and naso-pharynx, and the lungs remained free. Nor is this to be expected otherwise. Imagine, for the sake of simplicity, the air current passing in a straight direction toward the retro-pharyngeal cavity. Here it turns at an almost vertical angle, and it would be more than peculiar if the bacteria would not be held there

by the moist mucosa. On the contrary, one must suppose that the retro-pharynx keeps back the bacteria to a greater extent than the nose itself. But also deeper down the air current is deviated almost at the entrance into the larynx (the various prominences, such as epiglottis, arytenoids, etc.), and then especially at the bifurcation of the trachea. This would be the ordinary behavior of *normal* respiration.

In pathological conditions, when patients breathe through the mouth, the route of the air current to the apices is a shorter one; but other conditions occur to which we shall have to refer later.

Now, somebody might reply that the tubercle bacilli, like other foreign bodies in the upper air passages, causing an irritation, are removed by coughing, hawking, blowing, etc. This is correct, regarding the nose. We remove our nasal secretion, put it carefully in our pocket, and keep it there often for days, until it has time to get dry. For examination for tubercle bacilli, such handkerchiefs would surely make a fruitful object. Whether these handkerchiefs are really often a source of infection, I will not now decide.

We also remove the secretion from the pharynx, larynx, and perhaps from deeper parts, before the bacteria had time to settle. But the only places whence we cannot remove the phlegm, are the tonsils and the retro-pharynx.

Regarding the tuberculosis of the tonsils, many investigations have been made. I will only mention the works of Strassmann, Hanau, Schlenker, Krueckmann and Baumgarten. The last mentioned author is, perhaps, the only one who suspects a primary tuberculosis of the tonsils—these organs offering the point of entrance for the virus. Others, like Strassmann, pronounce against it. Others declare, again, that to the mandibular infection belonged a much greater importance than is generally accepted. And Schlenker points to the anatomical facts, which are of importance for the infection of the lymphadenoid ring in the pharynx, and especially for that of the mandibular infection. These facts receive a further support by the analogy of the topographical behavior of acute glandular processes, whose origin undoubtedly lies in the tonsils.[1]

[1] After finishing this article a monograph appeared in Bresgen's collection: "Ueber Skrofulose, ihr Wesen und ihre Beziehungen zur ruhenden Tuberkulose der Mandeln, etc.," by Hermann Suchannek, to which I should like to draw attention.

The second place is the retro-pharynx. Here all conditions are present for the speedy settlement and development of the tubercle bacilli. First, the *undisturbed quiescence of the nutritious soil is of special importance to their development*. In superficial respiration—as it is with most people who lead sedentary lives, and during sleep—the upper part of the naso-pharyngeal cavity is influenced very little by the air current. The air stagnates there, and a "*dead point*" (todter Punkt) is created. This is of still greater importance for the settlement of tubercle bacilli in the upper air passages than the "dead points" (so called by Wernich,) in the lungs at their apices.

Now another condition confronts us, which is of vital importance for the deposition and development of the tubercle bacilli, *i. e.*, the many catarrhal affections in the nose and retro-pharynx. We know that ciliated epithelia are of significance for the protection of the organism, but the catarrhs of the mucosa have a very destructive influence upon these epithelia. If a tubercle bacillus comes in contact with such a locality, partly or completely deprived of its epithelium, then it has no difficulty in getting into the proper lymph tissue—and lymph tissue is here found plentiful. Once located, there is nothing in the way of its development under the cover of the tenacious, sticky secretion. If a primary infection takes place here, it is also the opinion of Dmochowski that tubercle bacilli *are* being absorbed, and *can* infect secondarily other organs, when they have once penetrated the mucous membrane of the retro-pharynx.

We must, therefore, look upon tuberculosis, first of all, as a *purely local affection*, a view already expressed by Ponfick[1] in 1890. He explains the further progress by saying that through the penetration of the bacilli into the respiratory passages, which we must consider as an *indirect* one, the mucosa of the main channels, as well as of the accessory ones,[2] is stimulated to reaction. In the beginning this presents itself merely as an "indifferent catarrh." It is just this inflammatory condition which covers the mucosa with a tenacious exudation. This offers an adequate and proper nutritious medium for the rapid

[1] E. Ponfick: Ueber Tuberkulose. Verhandlungen des 10. Internat. Med. Congresses. Berlin, Bd. II.. p. 154.

[2] Ponfick means by this: Nose and pharynx, with accessory cavities, especially the middle ear.

propagation of spores, which, under ordinary conditions, would have been present in small numbers.

Ponfick could not have given a better description for our purposes. But we do not need to wait for the entrance of the tubercle bacilli, in order to produce that "indifferent catarrh;" it so often presents itself to our notice. Hence, we have to deal here with a purely local affection, which becomes constitutional later.

Now, the idea has prevailed, and still does prevail, and Straus also seems to defend it, that the initial lesion is generally in that place which has served as entrance for the virus. Contrary to this are many evidences in our pathological anatomy. To mention briefly: In animals which were inoculated with tubercle bacilli, either by subcutaneous injection or by exhibition through the mouth, lesions of the lungs developed. Then it was proven (Bollinger and others) that the tuberculous virus is apt to pass through intact tissue. Therefore, not even abrasion or deeper lesions of the mucosa are necessary to produce an infection.

Bollinger especially mentions that the mucous membranes of the head possess a great disposition to allow the tuberculous virus to pass through their structures without themselves getting diseased. This quality is considerably increased by pathological, and especially inflammatory, changes of the mucous membrane, so-called primary affections, as, for example, in scrofula, otitis, rhinitis, etc.

Heller, of Kiel, also mentions that undoubtedly tubercle bacilli can pass into the tissues through sound and intact epithelia. Without question, their entrance is facilitated by the absence of epithelia, by erosions of the mucosa, and similar lesions; but not necessarily.

There is still another factor that makes the retropharynx the locus minimae resistentiae. The different kinds of bacteria, especially the cocci, are, according to the experiments of Babes, prone to prepare the soil for the tubercle bacilli. Thus, this factor also facilitates the entrance of the tubercle bacilli into the mucosa of these parts. Once penetrated into the lymph tissue, it wanders with the lymph stream until it gets into larger lymph vessels, and finally into the thoracic duct. On its way thither the bacillus is quite frequently hindered or detained by devastation and stoppage of the vasa afferentia, etc., and the latent tuberculosis, so commonly met with, origin-

ates. On the other hand, the thoracic duct becomes the main source for the further spreading of the germs. From here the infection of the apices of the lungs, the loci minoris resistentiae, proceeds.

It is evident that the organism frequently reacts against the invasion of the tubercle bacilli, and the glandular swellings, so common in children, appear. These lymphomata, often nothing else than a consequence of an existing retro-pharyngeal affection, bear the same relation to this condition as the inguinal bubo does to the primary affection in the genitals (A. Heller).

After the foregoing, it seems to me plausible that *the hypertrophy of the lymphoid tissue at the vault of the pharynx is nothing more than the expression of this reactionary inflammation.*

Let us now briefly compare the mortality according to the different ages, and we shall again observe some peculiar facts: In infancy, the frequency of tuberculosis is a very striking one. This cannot depend upon nourishment, as most children get extraordinarily nourishing food at this age. Heredity is excluded a priori just as are other factors.[1] But let us only throw a glance into the children's play-rooms, filled with vapors of all sorts, in which the child is kept during its first year almost a prisoner, and we shall understand why that child dies of inanition of the air passages. The more children go into the open air, the greater the decrease of mortality from tuberculosis, until it reaches its minimum between the 10th and 15th year. According to Heller (Kiel), 15 die at this period out of 10,000 living while toward the end of the first year of life, 240 die out of 10,000 living, from tuberculosis. According to others, the lowest mortality comes between the fifth and tenth year of life. However this may be, the lowest death rate is surely at that period when children run around and play in the open air.

Later on, when school-life commences, when the children are forced to spend not only from 5 to 6 hours in the school-room, but also several hours at home studying, all of which must naturally be done in closed rooms in winter,

[1]Thus, for example, Volland-Davos believes that the tuberculous sputum very frequently is found on the floor. Children playing on the floor naturally often bring their noses near this poison, and in this manner, it might be explained, become infected with tuberculosis.

and also in summer, alas! when they begin to pursue their unhygienic vocation, then mortality increases and grows steadily to advanced age. That the school instruction during the warm season, even in smaller towns, is still given in closed rooms, is a condition that will surely rebel, and seek vengeance in the growing child.

An explanation why bacillar meningitis of tuberculous origin is met with more commonly in children than in grown people, may, possibly, be that the tubercle bacillus travels from the retro-pharynx to the cranial cavity through the lymph-vessels more readily in children than in adults. I have no anatomical experience at my disposal, but from a clinical standpoint I would ask you to remember that very young children, by not being able to blow their noses, have stagnation of their nasal and naso-pharyngeal secretions.

Before I conclude, I must refer to several works touching very closely upon our theme: Thus, Caillé, and later on, A. Jacobi, in 1885, have recognized the importance of the retro-pharynx as the avenue of entrance for infectious diseases, especially diphtheria. As significant as this fact is, as little can I approve of the "naso-pharyngeal toilet" recommended as prophylactic measure by Caillé. In this respect I should like to draw attention to the remarks made by Soltmann, Seibert, and others, at the Tenth International Congress, in Berlin.

Again, Ziem and A. Heller (Nuernberg,) have expressed views similar to mine. Their manner of proving varies, but there are some fundamental sentences which I will mention here.

A. Heller[1] brings out the following points: 1st, the first localization of the virus in inhalatory diseases takes place in the upper air passages, *i. e.*, in the nose and retro-pharynx; 2d, at these places the period of incubation commences and ends; 3d, from here the absorption into the blood, into the lymph-channels, takes place, and then comes our general infection. Heller concludes that in tuberculosis, which alone interests us here, we should frequently syringe the retro-pharynx, especially in those cases where we find chronic catarrhal affections of the upper air passages.

[1]Adolf Heller: Pharyngotherapie. Muenchener Med. Woch., 1894, p. 865.

Ziem,[1] having studied nasal affections independent of Heller, believes that the most important disposition to diphtheria is given in a primary purulent affection of the nasal mucosa. The dropping of the pus puts the entire mucosa into an inflammatory condition, transforming it later, under the influence of a specific virus, into a diphtheretic inflammation. Now, this view may possibly be correct in regard to diphtheria, and regarding small children who are unable to clear their throats and remove the phlegm running into the pharynx. We should not, however, generalize this sentence. A hypersecretion nearly always means an increase of the power of resistance, as the inhaled spores can then be expectorated more easily with the secretions. For tuberculosis, it is just the closely adhering, tenacious mucus which is so favorable for the development of bacteria.

A criticism of these last two essays appeared in May of this year, in the *Therapeut. Monatshefte*, from the pen of my friend Richard Kayser, of Breslau. We must agree with Kayser in many points regarding the pharyngeal *therapy;* but the therapy being purposely left out in this article, we cannot now enter into a discussion. On the other hand, Kayser's experiments helped to prove that there is not only "a mere possibility," but a real necessity in believing in a primary infection of the retro-pharynx.

And now a few words about the conception of the word "disposition." I never was able to understand this word, nor do I understand it to-day. If it be said that a child has brought to the world a disposition to tuberculosis, it means the child has inherited tuberculosis. Now, the possibility of a congenital infection and the occurrence of inherited tuberculosis, although proven, is still to be considered as a very rare occurrence. Vignal and Hutinal consider it very rare, as their inoculations of guinea pigs and rabbits were negative. In any event, the proportion of heredity to the general frequency of tuberculosis is so small that it cannot be considered here at all.

If, however, in spite of this, we cannot deny a certain heredity, it is not due to the fact that the children of consumptive parents were *disposed* to tuberculosis—although they might have a weaker constitution than the children of robust parents—but it is due to the fact that such chil-

[1]Ziem: Nasenleiden bei Infektiouskrankheiten. Muenchener Med. Woch., 1894, p. 985.

dren are exposed to the same noxious influences produced by habit or vocation as their parents, and thus acquire tuberculosis.

Supposing we have a family, with say six children, whose parents, either one or both, are consumptives. Let three children grow up under the old surroundings, and surely two or all three of them will get tuberculosis. Place the others under hygienically good surroundings, let them lead an out-door life all day long, and most likely all three will escape it.

If we bring a man into unfavorable surroundings, or give him an occupation by which the formerly robust man emaciates, declines, acquires a long thorax, then they say this man had the disposition to tuberculosis. Just as well, one could say, a person operated upon is disposed to erysipelas. True, an operative case can acquire erysipelas, but only under conditions which can almost be defined with mathematical exactness. Just as it was formerly considered an "unfortunate occurrence" when a person operated upon got erysipelas, so it is now considered an "unfortunate occurrence" (v. Leyden) when "a disposed individual comes within the reach of the tubercle bacilli," and he develops consumption. Just as we prevent erysipelas nowadays, just as well should we prevent tuberculosis, and I hope the time is not far off when these views will gain general recognition.

943 Madison Avenue.

THROMBOSIS OF THE PETROSAL, CAVERNOUS AND CIRCULAR SINUSES OCCURRING IN SCARLET FEVER AND DUE TO ACUTE SUPPURATIVE OTITIS MEDIA.

By J. W. Stirling, M. B., Edin., Etc.,

MONTREAL, CAN.,

PROFESSOR OF OPHTHALMOLOGY AND OTOLOGY IN THE UNIVERSITY OF BISHOP'S COLLEGE; SURGEON OCULIST AND AURIST TO THE MONTREAL DISPENSARY AND FOUNDLING HOSPITAL, ETC.

In the *British Medical Journal* of January 26, 1895, Dr. Sidney Philips reported three cases of edema of the upper eyelids occurring during the course of scarlet fever. All three cases had the complication of acute purulent otitis media and the writer assumed the most likely cause of the edema to have been thrombosis of the cavernous sinus set up by the middle ear trouble.

All three cases recovered so that no post mortem examination followed to confirm Dr. Phillip's assumption.

In November, 1894, I had the opportunity to have a similiar case under my charge at the Foundlings Hospital, and as the child died I was fortunate enough to secure a post mortem examination.

The case was as follows:

George D., 17 months old, was seen by me for acute otitis media occurring during the course of scarlet fever.

The left ear was the one affected and swelling rapidly developed over the mastoid area, although the ear was discharging freely.

I cut down behind the ear giving exit to a quantity of fetid pus, and chiseled away some of the posterior wall of the external meatus which was carious with sinuses throughout it.

Three days later edema of the left upper eyelid developed which rapidly became so swollen and hard that it was impossible to force it open in order to examine the front of the eye.

One day later the right upper eyelid began to swell and very soon assumed the same condition as the left.

There was no acute inflammation of the front of the eye, at any rate at the outset.

Two days later the swelling of the left eyelid began gradually to subside and later on, also, that of the right eyelid, so that in four days' time the front of the eye could be seen, luckily uninjured.

The child throughout was in a semicomatose condition; the tem-

perature was subject to sudden rises and falls, rising as high as 104.6°.

Death occurred three days after the subsidence of the swelling.

The post mortem examination was made by Dr. C. F. Martin, the pathologist to the institution, whom I have to thank for the following report:

There was thrombosis of the left superior petrosal sinus also, of the cavernous and circular sinuses.

It was a parietal thrombus adherent to the walls of the sinuses. The clot did not entirely fill the lumen of the vessels. It was fairly organized.

It seemed to have been a temporary clot, which afterwards softened and broke down and was tunneled through.

The symptoms of this case at the outset pointed strongly to thrombosis, secondary to the middle ear disease and the appearance of the swelling in the right eyelid made the diagnosis of thrombosis almost certain.

The origin and extension of the troubles must have been through some of the small veins of the attic of the middle ear, which open into the superior petrosal sinus, the thrombosis commencing in them and gradually spreading in the direction indicated by the post-mortem examination.

The occurrence of the symptoms in the right eye pointed to an extension through the circular sinus to the right circular sinus.

The breaking down of the thrombus is characteristic of the inflammatory as compared to the marasmic thrombus; and the disappearance of the swelling was evidently coincident with this and due to it, as well as to the establishment of collateral circulation, I should judge.

EARLY OPERATIONS FOR THE CLOSURE OF CLEFT PALATE.

By Truman W. Brophy, M. D., D. D. S.

of Chicago.

Operations for the closure of cleft palate should be performed in early infancy. In making this statement, I fully realize that my views are not in accord with those of many distinguished surgeons, but clinical experience has demonstrated that what I presented to the profession a few years ago as a theory in regard to palate operations, has become a well-established practice. It is well known that many infants born with this defect die within a short time after birth, when the cleft is of a marked character. Lawson Tait says that one-half of the children born with extensive clefts, die from starvation within a few days after birth.

In the complication of hare-lip with cleft palate, the practice has almost invariably been to operate upon the lip, and allow the fissure of the palate to remain unclosed. This, in my opinion, is a mistake. The palate should be operated upon first, for various reasons.

1. The fissure of the lip enables the operator to gain a little more room in which to work.

2. The closure of the palate is an operation attended with great difficulties in its performance; besides, the closure of the cleft through the alveolar process, if it exists, may be more surely accomplished, when fully exposed to view through the divided lip than when covered, as it would be subsequent to the closure of the lip.

It is unnecessary to say that the bones are soft and will easily yield in early infancy. The tissues unite kindly, and the shock following the operation is not so great if performed within the first month, as it would be later in childhood. It is a well known fact that the nervous system of a child is not so well developed in early infancy as it is later; hence, one of the advantages of performing this operation before the nervous system has developed to a point which would subject the child to a more severe shock. The operation, therefore, should be performed as soon as the functions of the organs of the body are well

established. This may be within the first week, or any time within the first month.

3. After the operation the child will be better nourished.

4. If performed in early infancy, the muscles of the palate will be brought into action and will be developed, whereas, if the muscles are not thus put into use, they will atrophy, and later it will be found, as is often the case, that there is insufficient tissue to restore the palate to its normal form. It is scarcely necessary to state that muscular tissue which is not subject to action and use will not develop normally.

5. One of the most important reasons why we should operate in early infancy is, that the parts operated upon early not only develop well, but the child when arriving at the age when articulation in the form of speech is attempted, finds that he can speak as other children do, and does not acquire the habit of articulating through the nasal passage, which is characteristic of this deformity, for the nasal accent, when once acquired, cannot be easily corrected. Fissures or cleft of the palate are almost invariably accompanied with pharyngitis.

6. The operation on the hard palate can be more easily and successfully accomplished before the calcification of the bone is far advanced, and also before the eruption of the teeth; if made subsequent to the eruption of the teeth, it is always attended with more difficulty, and the results are less satisfactory.

The operation is as follows: Introduce the oral speculum and vivify the edges of the fissure; do it thoroughly. A mere scraping of the mucous membrane will never suffice to bring about union which will be permanent and satisfactory. Trim well the opposing surfaces of the bone on the hard palate. If this be well done, it will secure a sufsufficient exudate to make the operation a successful one in this respect. The knife will easily cut through the soft bone of the hard palate and the alveolar process of young patients. Then raise the cheek, and well back toward the posterior extremity of the hard palate, just back of the molar process, and high enough to escape all danger of not being above the palatal plate of the bone, insert a large braided silk suture, carrying it through the substance of the bone, so that it will come out at a corresponding position upon the opposite side. It is often difficult to pass the suture through to the opposite side, and under such

circumstances the needle, with eye in point, may be carried from the buccal surface of the bone to the median line, the stitch taken up with a tenaculum, and then the needle inserted from the opposite side, the thread then to be united and carried through. The silk suture is more easily introduced by the needle, but a wire suture of silver should be substituted for it, and drawn through in its place, and this wire may be doubled, in case the condition of the parts and the tension upon the tissues necessary to approximate them, seem to require it.

Nearer the front portion of the palate, insert another wire, carrying it through the substance of the bone above the palatal plates, and out through the other side, in a position corresponding to the place of entrance. Thus we shall have one wire passing over the palate in front of the malar process of the bone, and another behind it.

The next step is to take a lead button, moulded to fit the convexity of the part, and long enough to pass beyond the exit of the wire sutures, so that they will pass through it. Have it provided with eye-holes, through which are passed the protruded ends of the wires upon each side, and then twisted. These are heavy tension sutures, and once approximated, the parts cannot be separated by the patient. If we are unable to close the fissure with these wires, if from lack of tissue or from firm resistance of the parts it cannot be done, there is a further method to be employed which will obviate these difficulties. After the cheek is well raised, divide the mucous membrane just over the malar process. Here insert a knife in a horizontal direction, and when well inserted, sweep the handle around from one side to the other, as from behind forward. In this way a maximum amount of bone is divided and a minimum amount of the mucous membrane. This done on each side, the bone can very readily be moved toward the middle line. Having thus divided the bones upon either side, the wire sutures passing through the lead buttons may again be twisted, and the cleft of the hard palate will be easily closed by approximation of the two sides. The incision in the mucous membrane, in making the separation of the bones, should be as small as possible, for the reason that this membrane must serve to retain the bones in proximity, or to hold them nearly together. If, after the parts are approximated, they are kept antiseptically clean, the bones will kindly unite and the palate will

be restored, so that its full function will be performed. Separation of the bone is attended with little hemorrhage, and the parts do not usually cause more inconvenience to the patient than the ordinary operation of lifting the hard palate, according to the practice of Ferguson.

The germs of the teeth are sometimes disturbed, as I have found later, when they were erupted, that certain teeth were imperfectly formed. This applies to the molars of the temporary set, but the germs of the permanent teeth may also be disturbed, and the teeth made imperfect by this procedure, but the dental defects are of little importance when offset by the benefits of being relieved of so great a deformity. The palate, too, may be contracted to an abnormal extent; and yet it is a well known fact that the alveolar process develops with the eruption of the teeth, and my experience has convinced me that in mouths thus treated, the upper teeth, when they erupt, oppose in a normal way, those of the lower jaw. If, however, the superior arch should be abnormally contracted, the means well known to the modern dentist may be employed to widen it.

After the approximation of the edges in the manner I have described, the parts should be thoroughly dried, the edges of the wound carefully examined, and if need be, some fine sutures inserted here and there, to ensure perfect co-aptation of the parts. The *after-treatment* is very simple, consisting solely in antiseptic cleanliness, nourishing of the patient upon liquid food, the prevention of disturbance of the parts of the child, or of the introduction into the mouth of anything that might interfere with the sutures. Abrasions of the mucous membrane caused by the buttons, need not disturb the operator, for they are usually slight.

PYOGENIC BRAIN DISEASE*.

ALBERT RUFUS BAKER, M. D.,

CLEVELAND, OHIO,

PROFESSOR OF DISEASES OF THE EYE, EAR AND THROAT IN THE CLEVELAND COLLEGE OF PHYSICIANS AND SURGEONS. OCULIST AND AURIST TO THE CLEVELAND GENERAL, ST. ALEXIS AND CITY HOSPITALS.

In my opinion, as great advances will be made in brain surgery during the coming years as have been made in abdominal surgery during the past few years. While many healthy ovaries have needlessly been removed, and difficult and dangerous operations have been undertaken by medical tyros, with disastrous results, and many useful lives have been sacrificed by needless operations, bungingly performed, yet on the whole, we are greatly the gainers by what the abdominal surgeons have accomplished. Many more lives have been saved than lost, and countless chronic invalids, whose lives have been a burden greater to bear than even death itself, have been restored to health and usefulness. I need not tell you that only a few years ago the abdomen was looked upen as a sealed casket, and labeled "hands off." During our late civil war, when word came home that a poor soldier was wounded in the abdomen, even a layman needed not be told that the wound was mortal. How different now!

What was then true of the abdomen is now true of the brain, in the minds of many the members of our profession. And yet bullets have been successfully located and removed, and tumors of the brain have been frequently diagnosed and successfully removed. The cerebral cavity is now fearlessly opened, clots of blood turned out, and bleeding vessels tied or otherwise controlled. But the greatest advance in brain surgery that has been made by a few pioneers in this field of surgery, is in the diagnosis and treatment of pyogenic brain disease. The physician who hopes to keep abreast of modern surgery, must revise his knowledge of cerebral anatomy. He must change his views as to the pathology of many brain diseases. It is surprising how

*Read before the Northwestern Medical Society at Defiance, Ohio, Dec. 10, 1896.

ignorant of this subject many otherwise good practitioners are. How frequently cerebral abscesses have been diagnosed as malarial fever, meningitis as typhoid fever, sinus-thrombosis as pneumonia, pleurisy, or tuberculosis, Heaven only knows!

A few years ago a young Irishman came to my office for an eye disease. I incidently discovered a purulent otorrhœa, and a large aural polypus. The patient refused to have it removed, for the family doctor had advised him not to have the discharge stopped, as it might kill him. I told him it was almost stopped now, and it would kill him if he did not do something for it, but he refused to let me touch it. A few months later a neighbor came in, and told me that Pat was dead. "And what did he die of," asked I. "Why, the doctor said it was typhoid fever, but I never in all my life saw a man with typhoid fever have such fits all the time and die in three days," he answered. I had curiosity enough to look up the death certificate, and saw it returned in the doctor's handwriting as "typhoid fever."

A few years ago, I invited one of our oldest and most respected physicians to be present at a mastoid operation. After the operation, he confessed that in his thirty years' practice this was the first case of mastoid disease he had seen. I told him that I thought he must have seen cases and not recognized them. He thought this possible, and during the next year I operated upon several cases he sent me. The frequency of these cases is such that I do not believe it possible for one engaged in general practice for any considerable length of time, not to have met one or more of them, although, as intimated before, they are usually not recognized. I think they are much more frequent since the epidemic of *la grippe* which we have had during the last five or six years.

One of the most frequent afflictions to which mankind is heir is a catarrhal inflammation of the middle ear, and a purulent infection grafted upon this, is all that is necessary to kindle a smouldering fire that is liable to break forth at any time with the most terrible results. The man with purulent middle ear disease has a charge of dynamite at the base of his brain, which is liable to explode at any time. The first explosion is apt to be an angry mastoiditis, characterized by persistent pain and tenderness over the mastoid process, and a considerable amount of constitutional disturbance out of proportion to the elevation of

temperature. Fortunately, grave cerebral complications are usually not present, and prompt, energetic treatment of the middle ear, and if necessary, early opening of the mastoid will almost always prevent the extension of the disease to the brain. Notwithstanding, serious brain complications occasionally follow, especially in cases of scarlatina and in some of the recent cases of influenza. If the middle ear disease is not carefully treated, it is frequently followed sooner or later by a second or third attack of mastoid disease, and is much more liable to be followed by pyogenic infection of the brain. It is these cases of long standing that are more likely to be overlooked, and not recognized either by the patient or his medical attendant. Either the pain is not severe, or the patient becomes accustomed to it and makes no complaint. Many are apparently not seriously ill—they attend to their usual occupations almost up to the time of death. A clerk in one of our large dry goods stores remarked one afternoon that he was not feeling well and would go home, and in two hours he was dead. An autopsy revealed a large cerebral abscess. He had not consulted a doctor, and his wife did not know that he was ill. A bright young physician who was ailing for some time, was prescribed for several times for malaria, but continued to attend to his professional duties. One night he was called out to see a patient several miles in the country, returned, threw himself on his bed without undressing, and in the morning was found dead. Suicide was suspected, but autopsy revealed an extensive leptomeningitis. Several times I have been asked to see patients with suspected pyogenic brain disease on the following day, but received an early message in the morning, that my services would not be needed, as the patient had died during the night.

As a rule, however, in fatal cases there is a history of persistent head-ache, vomiting, a purulent discharge from the ear of long duration, but frequently a total or partial suppression of the otorrhœa shortly before the onset of the present attack. Staggering gait is often present, focal symptoms occasionally, and optic neuritis frequently. In cases of meningitis the temperature is high, pulse rapid; in sinus-thrombosis, rapid exacerbation of temperature and pulse, often changing five or six degrees in two or three hours. In cerebral abscess the temperature is subnormal, pulse slow. Death is usually preceded by symp-

toms of cerebral compression, dull intellect, or mild delirium. The absence of one or all of these symptoms does not preclude the possibility of serious brain disease. They are seldom, if ever, all present.

In my experience I know of no operation, not even excepting that for the relief of strangulated hernia, that promises such brilliant results as that of the mastoid operation when not complicated by brain infection. I have a memoranda of 143 cases operated upon for mastoid disease; of these 127, uncomplicated by pyogenic brain disease, recovered. A few, it is true, have required a second, and even a third operation. In a few the recovery has been slow and tedious, but in no case has death resulted, directly or indirectly, from the operation, and in no case, so far as I have been able to learn, has death resulted from a return of the disease. And even in cases of brain disease, the prognosis has not been altogether bad, and with our new improved methods of diagnosis and technique, I have no doubt that the mortality might have been less.

I wish to report very briefly all the cases of brain disease, as a result of middle ear disease, upon whlch I have operated:

CASE 1. *Sub-dural Abscess.* Mr. F., 20 years of age, constant headache, vomiting, vertigo, chills, convulsions, paralysis of side of face, staggering gait, and other evidence of brain disease. Mastoid was opened, and a fewe drops of pus evacuated. The next day a large abscess cavity discharged through the mastoid opening. Full significance of the condition was not recognized at the time, but I now know the case to have been one of sub-dural abscesses. The patient made a rapid and complete recovery.

CASE 2. *Cerebral Abscess.* Mrs. C., 38 years of age. History of repeated attacks of earache and of mastoid inflammation. No purulent discharge from ears: drum membrane not perforated. Patient treated for typhoid fever, then three months for malarial fever. Recently developed paralysis of side of face, partial paralysis of arm and leg of opposite side, double optic neuritis, chills, one slight convulsion, headache, vomiting, sub-normal temperature, pressure pulse. Mastoid opened at the Women's and Children's Hospital, and found connecting with large cerebral abscess through perforation in tegmen tympani. The amount of pus evacuated estimated at four ounces. Patient made a most rapid and complete recovery. Some years later this patient had an attack of mastoiditis of the opposite side, without any cerebral complications, which recovered promptly upon opening.

CASE 3. *Cerebral Abscess.* Mr. S., 40 years of age. Old purulent middle ear disease, other symptoms similar to the preceding case, excepting paralysis of arm and leg not present. Wilde's

incision made at one of the city's free dispensaries about six months previously. Abscess cavity, when opened at the Cleveland General Hospital, contained about one ounce of pus. Patient made a slow recovery. Had to open the abscess cavity two or three times, and it was nearly a year before fistula closed behind the ear. Patient was seen the other day, and said he was entirely well.

CASE 4. *Cerebral Abscess.* O. R., boy 14 years of age. Has had hip-joint disease; has had an old middle ear disease since childhood; a large polypus removed without relief of headache, fever, tenderness over mastoid, etc. Opened mastoid, found considerable dead bone, granulation tissue, and cholesteatomatous masses in the antrum and attic. Purulent discharge from middle ear continued. Headache returned after several weeks, and optic nueritis followed soon after. It was decided to make another operation, which revealed a large piece of dead bone involving the tegmen tympani, and a large abscess cavity above it. The boy made a slow but complete recovery.

CASE 5. *Sub-dural Abscess.* G. H., girl 18 years old. History of old middle ear disease. Some months previously was in another hospital in the city, and Wilde's incision made. Discharged from hospital, returned to work as a domestic, and came to my office one morning, complaining of pain and tenderness on pressure of the mastoid; the temperature was sub-normal, and there was some evidence of pus absorption. Operation same afternoon at Cleveland General Hospital, expecting to find an ordinary case of mastoid disease, but a large sub-dural abscess, holding several ounces of pus, was found. Recovery rapid and complete.

CASE 6. *Cerebellar Abscess.* A. B., 19-year-old Bohemian girl, walked into the Cleveland General Hospital on the afternoon of September 21, 1895. She was seen the same evening, and gave a history of an old neglected purulent middle ear disease. Had consulted a physician several times during the past two or three months for headache, from which she had received little relief. She continued to pursue her occupation, that of a domestic servant, without interruption until the present time. She answered questions slowly, which was attributed rather to her imperfect knowledge of English than to any cerebral disturbance. There was no paralysis, no impairment of sight acknowledged, but a slight optic nueritis was present. Very offensive smelling purulent discharge from left ear. Drum membrane destroyed, and middle ear filled with granulation tissue. Slight tenderness on pressure over the mastoid process—no swelling or redness. Temperatue 100, pulse 84, body well nourished, and with the exception of a slight appearance of pallor to the skin, and a sweetish offensive breath frequently observsd in cases of pyemia, she was not apparently seriously ill. On the next morning, September 22, I found her in a semi-conscious condition. Only with great difficulty could she be aroused to answer questions in monosyllables, immediately dropping off into a condition resembling deep sleep. Temperature 99, pulse 52. A diagnosis of cerebral abscess was made. The mastoid antrum was opened and no pus found. I requested Dr. G. W. Crile to open the temporo-sphenoidal lobe. He found absence of cerebral pulsation, and other evidence of intra-cranial pressure. Needles were passed into the temporo-

sphenoidal lobe in several directions, and no pus found. One of them entered the lateral ventricle, and a large quantity of fluid was evacuated. The condition of the patient was temporarily improved, but on the morning of the 24th she died, about 48 hours after the operation. The autopsy by Prof. Ohlmacher, of the Cleveland College of P. & S., revealed a large cerebral abscess. The specimens exhibited, consisting of the left temporal bone and corresponding lateral lobe of cerebellum, present an interesting condition. The major portion of the mastoid was removed in the first effort to reach the abscess cavity. The petrous bone is necrotic from its base to the meatus auditorius internus. A large sub-dural mass occupying the outer half presents upon its anterior surface. This mass is probably an abscess cavity caused by the extension of the necrotic process through the tegmen tympani. A probe may be passed through a canal whose external opening is in the posterior wall of the middle ear, and whose internal opening is in the posterior surface of the petrous bone about the location of the hiatus Fallopii. This being the general direction of a portion of the aqueductus Fallopii, it would seem reasonable to suppose that the infection, resulting in a large abscess involving the entire left cerebellum, and extending slightly into the right, found its way through this channel. And this supposition I believe to be the correct one, for, in bringing the brain into its proper relation with the bone, the point at which the infection is carried into the lobe, is found to impinge upon the hiatus Fallopii.

CASE 7. *Sub-dural Abscess.* E. G., boy 10 years of age, Old middle ear disease, large aural polypus discovered several years previously. Parents would not consent to its removal. Commenced having pain in head, and tenderness over mastoid two weeks ago. Almost complete suppression of discharge from ear for several days. Mastoid opened, found mastoid process sclerosed, antrum found with considerable difficulty. Parents refused to permit of the child's being removed to the hospital for more formidable operation, Died two days subsequently. Autopsy by Drs. Shackleton and Morton revealed a sub-dural abscess, which had ruptured into the subarachnoid space.

CASE 8. *Cerebral Abscess.* E. D., 17-year-old boy. Old, purulent, middle ear disease, recurring headaches for several years. Coming home from work a few weeks previous to admission to Cleveland General Hospital, could not keep to the sidewalk. Vertigo continued, headache increased, vomiting more frequent, temperature sub-normal, pulse slow, slight chills, night sweats. Mastoid operation gave no relief. Patient became dull in intellect, and answered questions very slowly, and sometimes incoherently; slight optic neuritis. Dr. Crille opened temporo-sphenoidal lobe; found no pus, but great increase of intra-cerebral pressure. Recollecting experience in Case 6, he opened the cerebellum, but found no evidence of cerebellar abscess. Next day a profuse purulent discharge came from middle ear and also into pharynx. The symptoms improved. Temperature rose as after emptying cerebral abscess, and gradually fell to normal. Patient was apparently well. Several weeks later, there was a return of all the pressure symptoms, with some elevation of temperature chills, and other evidences of pus absorption.

It was decided to make another effort to locate the abscess. Above the tegmen tympani was found some broken-down cerebral tissue, and inspissated pus; but no abscess could be discovered. Patient died five days later, with symptoms of cerebral compression and septicemia. No autopsy permitted.

CASE 9. *Sinus Thrombosis.* E. R., a child of 9 years of age. Mastoid disease following scarlet fever; neck much swollen, temperature 106, pulse rapid, but temperature and pulse varying greatly from hour to hour. Operation revealed lateral sinus covered with large pieces of dead bone and thrombosed. This was one of my first cases of opening lateral sinus, and I must confess I was a little frightened, and instead of curretting the sinus, as I should do now, I plugged it with iodoform gauze, and completed the operation as soon as possible. There were several abscesses of the neck, and one of the parotid gland, but as the source of infection in the middle ear was thoroughly eradicated, the patient eventually recovered.

CASE 10. *Sinus Thrombosis.* G. P., an 11-year-old girl. Mastoid disease following scarlet fever. Extremely high temperature, chills, great variation in pulse and temperature. Abscess of neck, chest, and over tibiæ. No pus found in mastoid, but lateral sinus thrombosed. Curretted and packed with iodoform gauze. She made a good recovery.

CASE 11. *Sinus Thrombosis.* Mr. M. J., 40-year-old sailor, at City Hospital. Old mastoid disease—had been operated upon previous to my service. Large abscesses in neck, burrowing in every direction. When thoroughly curretted, the cervical vertebræ could be seen. Thrombosis of lateral sinus curretted and packed with iodoform gauze. Patient made a good recovery.

CASE 12. *Sinus Thrombosis.* G. W., colored man aged about 25, at St. Alexis Hospital. Old mastoid disease; internal jugular could be felt as a large, hard cord back of the sterno-mastoid. The mastoid process was made up almost entirely of dead bone, pus and granulation tissue, through which the lateral sinus found its way, occluded by a thrombosis as far as could be followed. There was great emaciation, and other evidence of septicemia. As I could not remove the entire source of infection, I tied the internal jugular, hoping thereby to prevent the septic matter from being carried into circulation. At the end of two months this case so far recovered as to be discharged from the hospital, and came to the dispensary for occasional dressing. There was still some purulent discharge from sinus when last seen.

CASE 13. *Sinus Thrombosis.* A 28-year-old man. Had old middle ear disease, followed by mastoid disease, characterized by high and variable temperature and pulse; profuse sweating. A large mastoid abscess opened, and the lateral sinus found occluded by thrombus; was not curetted. Patient lived five weeks after the operation; developed metastatic abscesses of shoulder, chest and lungs, and died of septicemia. No autopsy.

This was one of my first cases, and I think he might have recovered if the operation had been a little more radical.

CASE 14. *Meningitis.* Mrs. S., a married woman, about 30 years of age. Treated several weeks for typhoid fever, subseqnently for malarial fever, and later for meningitis. At the end of about eight

weeks she was removed to the University Hospital, where I discovered an old mastoid disease. She was wildly delirious and had marked opisthotonos. The mastoid was opened, abscess evacuated, with temporary amelioration of the violent symptoms. For the first time in several weeks she recognized friends, but the delirium returned and she died a week later.

CASE 15. *Meningitis.* Mr. B., a young man of 25, operated upon at City Hospital. In many respects, similar to preceding case. Brought to the hospital wildly delirious, high temperature, rapid pulse, head retracted, pupils contracted, optic neuritis. Mastoid was opened, evacuating a large amount of foul-smelling pus. Apparently much benefitted, but only temporarily, and died three days later. Autopsy by House Staff revealed extensive meningitis.

CASE 16. *Meningitis.* Miss B., a girl aged 19. Old middle ear disease. One year previously had Wilde's incision made by a confrere for acute mastoiditis. She continued working in a large wholesale drug house until one evening she called upon her family doctor, with a temperature of 104. From the history given, the diagnosis of typhoid fever was made, but when seen on the following day, temperature was found normal. As patient had said the discharge from ear had stopped a few days previously, I was called in council late that night. The mastoid was opened the following morning, and a rather large pus cavity was found in the eroded mastoid cells, and a sinus communicating with the cerebral cavity, from which large quantities of pus escaped. Patient was so well after the operation that she insisted on going to table of family, eating a hearty dinner. Continued apparently well until about 8 p. m., when she had a chill —temperature rose to 108 and went up to 111 before midnight, and she died about 1 o'clock the same night. Autopsy next morning by Dr. Cotton revealed the entire half of cerebrum floating in pus; no abscess cavity could be found, and diagnosis of lepto-meningitis made. I am still inclined to think that if we had been permitted to take the brain with us for more careful examination, we would have found that death was due to rupture of abscess into the sub-arachnoid space.

To summarize these cases, we have eight cases of cerebral abscess; three died.

Five cases of sinus thrombosis; one died.

Three cases of meningitis; all died.

Sixteen cases of pyogenic cerebral disease, and seven deaths.

Adding these to the mastoid cases uncomplicated with cerebral infection, we have a total of 143 cases, with seven deaths—less than 5%. When we consider that I have never refused to operate upon any case, no matter how hopeless, it is remarkable how few deaths have been recorded. Many of the cases, not classed as pyogenic infective diseases of the brain, presented as serious symptoms as some of those here reported as such, and I doubt not many of them had at least a localized meningitis and some sub-dural abscesses, but the source of infection being removed, the *vis medicatrix naturæ* took care of the new foci of disease.

With two exceptions, these cases have all been treated from the aurist's point of view. The source from which

the pyogenic infection was being poured into the cerebral cavity, or into the circulation, was destroyed—stamped out. So far as possible the infective area was cured by curetting and draining, and while many of the operations may have seemed incomplete and temporizing from the general surgeon's standpoint, yet the results have been such as to compare favorably with the more radical methods of operation. It may even be found that the opening of the cerebral abscess from above through healthy brain substance is a source of danger, and better results can be secured in most cases by draining through the tegmen tympani, or the way the infection entered, as near as possible.

It sometimes seems to me that the boldness with which the general surgeon opens the cerebral cavity in his efforts to discover and drain cerebral abscesses, and the perfunctory way in which he passes over the source of infection in the middle ear, is a dangerous practice. It is a difficult matter to decide where the work of the aurist ends, and that of the surgeon begins. It would probably be better for our patients if the general surgeons knew more about ear diseases, and if the aurists were better surgeons; and at all events, I think the two should work together—one supplementing the knowledge and skill of the other.

ON OSTEOMATA OF THE AUDITORY CANAL,

With Report of the Successful Removal of a Large Exostosis by Means of Schwartze's Operation of Detaching the Auricle.*

By Harry Friedenwald. A. B., M. D.,

Baltimore, Md.

Osteomata of various forms are found in the temporal bone. Hyperostosis, resulting in narrowing of the canals, especially the internal auditory canal, accompanies general cranial hyperostosis. Osteomata have been found on the surfaces of the temporal bone, as well as within the mastoid process. Recent writers regard exostosis in the auditory canal, in many cases, as periosteal osteomata. They are usually globular or oval in shape, and are rarely pediculated. They are frequently multiple and often bilateral, being symmetrically placed in many cases. They are covered with a thin, sensitive skin, and are usually very hard. In some cases they are found to be spongy or even to contain cavities. The seat of these growths is most often near the mouth of the osseous auditory canal, more rarely in the deeper portions. The posterior and upper wall is the most frequently affected. When the tumors are multiple, they are usually placed opposite to each other. It is stated that males are more frequently affected than females, and that the growths are rarely found excepting in adults. Osteomata of the auditory canal grow slowly in most cases, and after attaining a certain size, remain stationary; but in some cases they have developed within a few months. Concerning the cause little is known, excepting that heredity is an important factor and that many cases are preceded by catarrhal or suppurative inflammations of the middle ear.

The symptoms produced are very slight, until the tumor or the tumors attain a large size. They become serious when they cause accumulations of wax or pus behind them. As long as there is some free space left in the caliber of the auditory canal, the hearing is not impaired. But if the canal becomes entirely closed, either by the tumor or by

*Read before the Clinical Society of Baltimore, Nov. 20, 1896.

accumulated cerumen or pus, the impairment of hearing may be very great. In the last mentioned case the gravity of the condition becomes most apparent: for retention of pus may occur with all its nesessary consequences. These neoplasms, moreover, produce great pain at times from the pressure of their ulcerated walls upon the canal. Concerning their treatment, we should remember, that when small and giving rise to no unpleasant symptoms, they should not be interfered with. But when they become the cause of deafness, especially of bilateral deafness, or when they produce retention of pus, their removal is indicated.

Various methods have been used to accomplish this. The dentist's drill has obtained great praise from some, others have used it without much success. The use of tents has been discarded, because of the great pain which they produce. The most satisfactory way of treating the tumors, is their complete removal with the hammer and chisel. This can sometimes be accomplished through the auditory canal. But when the tumors are very large, it is necessary to follow Schwartze's advice, and detach the auricle and cartilaginous auditory canal, by an incision behind the auricle, and thus expose the osseous auditory canal.

An operation of this kind has proved so satisfactory in my hands, that I take this opportunity of publishing it.

Mrs. S., aged 66 years, was seen March 11th, 1896. She denied ever having had an otorrhea, but about one year previously, a large mass of wax had been removed. For some time she had occasional shooting pains in the left ear and tinnitus. The hearing of this ear was almost lost; the ordinary voice was not heard even when close to the ear. On examination, a hard whitish tumor was found to entirely occlude the auditory canal. Its external surface, which was smooth, reached to about one-quarter of an inch from the mouth of the auditory canal. With a probe, its hard, bony consistence could be felt. With a great difficulty, a narrow probe could be passed in between the anterior margin of the growth and the wall of the canal. A little secretion exuded at some points along the margin.

April 7th, '96, the pain had increased very greatly, and granulation tissue had formed in the auditory canal and upon the surface of the growth. It seemed probable that pus was collected back of the growth, for some oozed from the edges of the tumor. An operation was therefore advised and performed the following day.

Operation: The patient was narcotized with chloroform. An incision was made back of the auricle, long enough to release the auricle and the cartilaginous portion of the auditory canal, and to expose the osseous portion. This was found to be entirely closed at

its mouth, by the osseous tumor. The granulation tissue was first scraped away. With a hollow chisel placed against the upper posterior wall of the canal, a few blows separated the tumor from its base. With a pair of forceps, the mass was extracted and the auditory canal was then found to be perfectly clear. The auricle was stitched into its normal position and the canal filled with a sterilized tampon. On the second day after the operation, the temperature rose to 101°, but soon dropped and the patient became more comfortable. A few stitch abcesses developed in the wound, but the auricle retained its normal position, the wound healing by first intention. A slight amount of suppuration from the auditory canal continued for some time. The patient made a good recovery, and was last examined seven months after the operation. She could then hear the watch at 36 cm. and the low whisper at 7 m. The auditory canal and drumhead appeared normal; there was no trace upon the surface of the canal to show the former location of the tumor.

The tumor is an irregular mass of bone. The surface that presented itself to our view, is somewhat concave and quadrilateral, measuring 1 cm. from side to side in both directions, and having as its greatest diagonal length, 13 mm. The greatest depth of the tumor is 8 mm. Its base is a small surface measuring 3x6 mm. The mass is made up of very hard bone. (Demonstration of specimen.)

TOXIC PARALYSIS OF THE CHORDA TYMPANI NERVE IN MIDDLE EAR OPERATIONS, FROM THE USE OF A STRONG COCAIN SOLUTION.

By H. A. Alderton, M. D.

BROOKLYN.

Mrs. Louise A., age 55 years, came to my office September 30th, 1896, for the relief of hardness of hearing of more than six years' standing, in the right ear.

Examination showed retraction and a depressed cicatrix of the posterior half of the membrana tympani of the right side, through which the incudo-stapedial articulation and its accessories could be plainly seen. The watch was not heard; the whisper was heard at the distance of half an inch, and speech at six inches; BC > AC up to the c iv. tuning-fork, where it became AC > BC; duration of BC moderately reduced throughout. After catheterization, the whisper was improved to five inches and speech to one foot.

The nerve being fairly normal for the patient's age, and the seat of the impediment to hearing being demonstrably in the middle ear, operation was proposed and accepted. On October 20, 1896, cut out the cicatrix on the right side and proceeded, under the use of a warm, fresh 20 per cent. solution of cocain hydrochlorate, made from the crystals just previous to the operation; the tendon of the stapedius was then divided, and this was followed by the disarticulation of the incudo-stapedial joint, with immediate improvement of the hearing for the whisper to 8 feet and for speech to 10 feet. The operative field was plainly in sight during the whole attack, and the chorda tympani nerve was not injured by cutting or traction, yet the patient immediately after the completion of the operation spoke of a peculiar feeling in the lateral half of the tongue. Taste was found to be impaired.

October 21st, 1896:—The paralysis of the chorda tympani has disappeared; the hearing is still maintained in its improved condition, and there has been no reaction.

Here was evidently a case of paralysis of the chorda tympani nerve from the action of a strong, fresh solution of cocain hydrochlorate, which had spread so as to involve the nerve in its influence. The paralysis persisted for somewhat less than twenty-four hours, and disappeared without sequelæ.

138 Clinton street.

A STUDY OF THREE HUNDRED CASES OF EAR DISEASES.*

By Wendell C. Phillips, M. D.,

OF NEW YORK.

It was not the original purpose to present any considerable portion of this paper in tabular form, but the plan arranged to get the histories into proper shape for study was found, upon its completion, to give a fairly complete history of the diagnosis, duration, cause, complications, operations, treatment and results of the three hundred and fifty cases, so that it has seemed wise to present it in its original form, with such comments as seem naturally to arise from a careful study of not only the patients themselves, but of these completed histories.

All of these cases came under my own personal observation, and were treated in the Manhattan Eye and Ear Hospital. Those of you who have helped at clinics know how difficult it is to get complete histories. For various reasons, patients cease coming after one or more treatments, and all efforts to get them to return, even for examination, fail. Again, there is that class of so-called "rounders," or "floaters," who go from one institution to another, never remaining very long in any one place.

In all the cases under consideration, postal cards requesting a return for inspection have been sent, and a small proportion have responded, giving an opportunity for re-examination, re-testing, etc.

It will also be noted that under the heading "Results," in the tabular form, the improvement, non-improvement or cure of each diseased condition is noted, some patients having as many as three, so that the number of diseased conditions is in excess of the number of patients treated.

Under the same heading attention is directed to results marked "not returned." This refers to those patients who did not return after the first examination. Where improvement has been noted, it has invariably been according to the patient's statement that he was better, and no doubt many of these cases relapsed into the original conditions after ceasing treatment. On the other hand, there can be but little doubt that a considerable number of the results marked "not returned" were actually cured (this being the reason for not returning). It is a custom in some institutions to count as cured such cases as do not re-

*Read by title before the American Laryngological, Rhinological and Otological Society, at its Second Annual Meeting.

A Study of Three Hundred and Fifty Cases of Ear Diseases.

A Study of Three Hundred and Fifty Cases of Ear Diseases.

Case No.	Age.	Sex.	Diagnosis.	Duration.	Cause.	Complication.	Tinnitus.	Nose and Throat.	Tests.	Operation.	Treatment.	Result.
1	30	F	o m c c both	6 months		cat eust tubes ecz canal	?	atrop rhinitis	yes all		K I. inflation mandell	rnuch improv.
2	13	M	Cerumen left	2 months		enlarged glands		hyp rhinitis defl sept	none		removal cerumen	cured
3	28	M	o m c c left o m s c right	7 years	Rhinitis		yes	acute tonsilitis defl sept	weber watch voice		inflatn, ol morrh cleansing, guiac, iron	glands better improved
4	35	F	Inflam attic right			infl max antrum	?	hyp rhinitis rt exost left	none		cocain-resorcin	cured both ear and antrum
5	26	M	o m sc both Inflam attic left	Since child hood	measles	infl attic discharge cerumen	yes at times		weber watch voice		sod bicarb, attic syringe, ol morrh	much impro'ed
6	28	M	Furnucle both	6 weeks			yes both		watch		boro-glycerid	improved, did not return after 3d treatment
7	40	F	o m c c adhesiv both	9 years	cold		yes both	deflect sept	weber watch		politzer, siegel	not improved
8	19	F	o m s c attic both	12 years	scarlet fever	adhesions		rhinit hyp, deviat sept left synechia	yes all three tests	breaking up adhesion	politzer, siegel, strych. 1-40	much improvd
9	19	F	o m s c right					hyp turb mid and inf left	none	removal hyp inf turb	alcohol drops, catheterized	not returned
10	6	F	o m c subacut	6 weeks	adenoids cold	adenoids		adenoids left tonsil hyp	none		referred to thr. dpt.	not returned
11	61	F	o m c c left Infl attic tymph left Cerumen right	1 year 3 days	hyp mid turb cold	o m c c mastoiditis	? yes	hyp mid tur rt ulcerat sept lft	yes all, twice		keralin-ichth for nose removal cerum politzer cocain resorc left	after relapse cured cer. cured
12	22	M	o m s c o m c c left	1 year	cold	anaemia			weber watch voice		alcohol rt politzer both, pil. strych. pil. ferri	improved
13	33	M	Infl attic tymp right o m c c left	7 weeks 3 weeks	cold	impacted fat	yes		all right and left		cocain-resorcin, removal fat, politzer,	improved
14	4½	F	Impact cerumen left	2 years		o m s sub ac		hyp tonsils	none		removal cerumen (sod bicarb) spray for nose baptol C. L.	cer. cured. o m s subac. much improved
15	9	F	Impact cerumen left						none		O. removed cer.	cured
16	33	M	Perichondritis auricular both	6 years	frost bite	herpes			none		keroline-ichthyol K I.	cured
17	22	F	Furuncle auricle Cerumen right o m c c Infl attic left	16 years	scarlet fever			chr hyp rhinitis	none	incised furuncle	H_2O_2 left	o m c improv'd furuncle
18	20	M	o m c c adhes right o m s c old attic left	8 months	defl sept			defl sept rt	yes all	Referd to throat dept	politzer, menthol	not ret'd
19	27	F	o m c c both	8 mos left			yes both	ulcerated sept tum bth sides	none		politzer siegel, electro-pneumat massage, aristol for ulcer	much improved
20	24	M	o m c c both Subacute attic left	2 months	deflect sept blow		yes	pharyngitis deflect septum lft	none		siegel catheter spray elect masseur	improved
21	9	M	o m s c right same case	8 years	relapse after measels and wh cgh	granulations poly p		hyper tonsils (sl)	none	removal polyp	H_2O_2 politzer chromic acid ol morrh. syr. fero. iod.	improved
22	26	F	o m s c left o m c c atrophic rt	16 years	scar fever hyp rhinit	polyp left		hyp rhinit inf turb old adenoid adhes hyp tonsils	watch		H_2O_2 inflation chromic acid to polyp.	improved
							yes	subac pharyng	none		removed cer politzer attic douche. later	cured improved

20	24	M	o m c c both Subacute attic left	2 months	deflect sept blow		yes	pharyngitis at flect septum lft	none			elect masseur H_2O_2 politzer chro-	improved
21	9	M	o m s c right same case	8 years	relapse af- ter measels and wh cgh	granulations poly p		hyper tonsils (sl)	none		removal polyp	mic acid ol morrh. syr. fero. iod.	
22	26	F	o m s c left o m c c atrophic rt	16 years	scar fever hyp rhinit	polyp left		hyp rhinit inf tur b old ade- noid adhes hyp tonsils	watch			H_2O_2 inflation chro- mic acid to polyp.	improved
23	55	M	Impact Cerumen rt	1 year			yes	subac pharyng	none			removed cer politzer	cured
24	24	F	o m s c right Infla attic tympo	since child hood for 1 year		granulations	?		weber watch voice			attic douche. later Ag NO_3 removal cerumen	improved cured
25	35	M	Impact cerumen bth	7 year			yes		none			removal cerumen	cer cured
26	51	M	o m c c subac, both	5 years		imp cerum both	yes		none			polit cocain-resorc sod bicorb rem cer	o m c c cured cured
27	35	M	impacted cerum both	1 week					none			ung hydrarg	cured
28	28	F	herpes auricle rt	1 week					none			politzer rem teeth	cured
29	31	F	otalgia left same case recovered after 5 months	2 months	carious teeth			atrop rhinit	none			warburg catheter and menthol K I. politzer siegel	cured improved
30	38	F	o m c c adhesive both labyrinth	3 months	defl sept	labyrinth		eczema nasi rt deflect sept	yes all			aristol for ecz cleansing chromic	cer cured
31	29	M	o m s c attic right impact cerumen left	21 years	defl sept	granulations		sept defl left chr naso phar	none			acid to gran syringe politzer ung	not returned cured
32	6M	F	o m s acute	10 days		eczema auricle & face, acute			none			hydrarg 25 per cent politzer catheter c	cured
33	47	M	o m c c atroph. both labyrinth		chr rhinitis	labyrinth	yes at times	chr rhinitis	yes all			menth K I. six mon K I. again	cured
	s c		otalgia	2 weeks								politzer cath menth	improved 13 m
34	29	F	o m c c both labyrinth	long while	hyp turb	labyrinth	yes	hyp inf turb right	yes all			K I syr hypophos	but com relpse
35	20	F	o m c c left cerumen right	1 year	hyp turb		yes	hyp rhinitis pharyngitis	none		cauterized turbinated	coca res politzer ca- theter siegel remov- al cerumen politzer	cer cured o m c c not imp after 4 mos
36	24	M	o m c subacute rt labyrinth o m c acute attic infl	6 months	exost sept	cerumen right acute attic infl lt	yes	exost sept hyp inf trb elong uvula	yes all left			throat dept treat removed cerumen politzer siegel cath menthol cocain-re- sorcin K I	cer cured o m c c not imp
			acute	6 months							no	boroglyceride tamp	cured
37	40	M	furunacle left later acute attic infl	3 weeks		acute attic infl	?		none			politzer leechcoc res	
38	7	F	o m c subacute both	3 weeks	adenoids	adenoids		aden, fol phar ecz narium	none		remov adeno- ids, ether	politzer	much imp
39	65	M	impacted cerumen both	1 month	?		yes left		none			remov cerum both catheter right	cured
40	15	F	impact cerumen rt	2 years			no	exost sept left	none			removed cerumen politzer	cured
41	22	F	o m c c adhesion both	5 years	typhoid & pneum	otalgia carious teeth			weber forks watch			teeth dentist politz pil ferri	not returned
42	33	M	o m c c right inflam attic left	5 months			?		fork weber watch left			cocain resorcin pol- itzer	cured
43	11	F	cerumen right					adenoids	none		adenoids rem	politzer, catheter menthol	cured improved
44	28	M	o m s c both	12 years	hyp rhinit			ulcerat sept bt	none			H_2O_2 politzer	

40	15	F	impact cerumen rt	2 years			no	exost sept left	none		politzer	
41	22	F	o m c c adhesion both	5 years	typhoid & pneum	otalgia carious teeth			weber forks watch		teeth dentist politz pil ferri	not returned
42	33	M	o m c c right inflam attic left	5 months			?		fork weber watch left		cocain resorcin politzer	cured
43	11	F	cerumen right					adenoids	none	adenoids rem	politzer, catheter	cured
44	28	M	o m s c both attic infl right	12 years	hyp rhinit		yes	ulcerat sept bt chr hyp rhin	none		menthol H_2O_2 politzer	improved
45	40	M	o m s c right	3 weeks		alcoholism	?		forks weber watch		alcohol drops, H_2O_2 politzer boric acid	not improved cured
46	25	M	o m s c attic left o m c c adhes cictrix rt	long time	recurrence		?		none		catheter siegel K I. ear kit	
47	23	F	o m s c left	1 year			yes	ecchond right	none		spray politzer cath	not returned
48	28	F	o m c c left mixed	1 year	chr rhinitis "cold"		yes	chr rhinitis follic pharyng	forks weber watch twice tested		siegel blauds syr hypoph syr fer iod	much impro'd
49	29	F	impacted crumen o m s c attic left	old case		o m s c attic	yes		none		sod bicarb remov cer H_2O_2 hot water douche trans to websters cl	o m s c attic cd cer cured
50	8	M	o m s c both s c five ms later rec	1 week 2 weeks	measles				none none		syringe H_2O_2 politzer C L O ferri	improved
51	10 M	M	o m sub acute left	5 days		cervic adenitis			none		C L O ferri iod ear kit	cured
52	24	M	o m s c attic right	8 months			yes		forks		cocain resorc politz	improved
53	36	F	acute inflam attic left recurrence	6 days	hyp rhinit grip 2 yrs before		yes	hyp rhinitis	forks weber watch		politzer cocain resorci glyc tampon	cured
54	23	F	o m c acute attic rt						forks		cocain resorin hot water douche politz	cured
55	40	F	O m s c old. right, o m s c perforation cicatrix, left	7 years			Yes, both		Weber forks watch		Delstanche inflation K I C L O blauds	great improvement
56	33	F	O m s c right, o m c c adhesive.left	31 years	Hyp rhinit cystic tnrb.	Cerumen both polyp right	?	Hyper rhinitis mid tur cystic	Forks		removal cerumen; chromic ac to polyp catheter H_2O_2. later ung Ol. Hg. 33 p. ct	cer cured, ex. acerbation, then gt imp't o m s c
57	10	F	O m c c, both, right left	4 years 3 weeks	Hyp rhinit worse by	Adenoids	No	Hyp tons, hyp rhinitis, ecz narium aden.	Yes, all	Adenoids tonsils removed, ether	Politzer, siegle, Fowler's, spray	much imp'd; 2d op for adn 3 mos later
58	23	F	O m sub-acute ? suppur left, recurrence after 2 years	1 week	cold 3 w'ks ago; aden.				None		Earkit, politzer	improved
59	6	F	O m s c, left	2 years	Teeth are carious	Dermatitis polyp			None		Earkit, dentist	not returned
60	13	M	O m s, acute, left recurrence after 3 ys	1 month	Measles				None		Earkit, politzer	improved
61	52	M	O m c c, left O m c c, right	5 years 2 years	Ecchon sept		Yes	Ecchond left	None		Catheter, menthol siegle K I delstanch	right side mch improved
					Cold		Yes		None		Catheter siegle. zn stearate ac. boric	improved

			acute	6 months		acute attic infl		uvula (	none	no	boroglyceride tamp	cured
37	40	M	furunacle left later acute attic infl	3 weeks		acute attic infl	?		none		politzer leechcoc res	
38	7	F	o m c subacute both	3 weeks	adenoids	adenoids		aden, fol phar ecz narium	none	removv adenoids, ether	politzer	much imp
39	65	M	impacted cerumen both	1 month	?		yes left		none		remov cerum both catheter right	cured
40	15	F	impact cerumen rt	2 years			no	exost sept left	none		removed cerumen politzer	cured
41	22	F	o m c c adhesion both	5 years	typhoid & pneum	otalgia carious teeth			weber forks watch		teeth dentist politz pil ferri	not returned
42	33	M	o m c c right inflam attic left	5 months			?		fork weber watch left		cocain resorcin politzer	cured
43	11	F	cerumen right					adenoids	none	adenoids rem	politzer, catheter	cured
44	28	M	o m s c both attic infl right	12 years	hyp rhinit		yes	ulcerat sept bt chr hyp rhin	none		menthol H_2O_2 politzer	improved
45	40	M	o m s c right	3 weeks		alcoholism	?		forks weber watch		alcohol drops, H_2O_2 politzer boric acid	not improved cured
46	25	M	o m s c attic left o m c c adhes cictrix rt	long time	recurrence		?		none		catheter siegel K I. ear kit	
47	23	F	o m s c left	1 year			yes	ecchond right	none		spray politzer cath	not returned
48	28	F	o m c c left mixed	1 year	chr rhinitis "cold"		yes	chr rhinitis follic pharyng	forks weber watch twice tested		siegel blauds syr hypoph syr fer iod	much impro'd
49	29	F	impacted crumen o m s c attic left	old case		o m s c attic	yes		none		sod bicarb remov cer H_2O_2 hot water douche trans to websters cl syringe H_2O_2 politzer C L O ferri	o m s c attic cd cer cured
50	8	M	o m s c both s c five ms later rec	1 week 2 weeks	measles				none none			improved
51	10	M M	o m sub acute left	5 days		cervic adenitis			none		C L O ferri iod ear kit	cured
52	24	M	o m s c attic right	8 months			yes		forks		cocain resorc politz	improved
53	36	F	acute inflam attic left recurrence	6 days	hyp rhinit grip 2 yrs before		yes	hyp rhinitis	forks weber watch		politzer cocain resorci glyc tampon	cured
54	23	F	o m c acute attic rt						forks		cocain resorin hot water douche politz	cured
55	40	F	O m s c old. right, o m s c perforation cicatrix, left	7 years			Yes, both		Weber forks watch		Delstanche inflation K I C L O blauds	great improvement
56	33	F	O m s c right, o m c c adhesive.left	31 years	Hyp rhinit cystic tnrb.	Cerumen both polyp right	?	Hyper rhinitis mid tur cystic	Forks		removal cerumen; chromic ac to polyp catheter H_2O_2. later ung Ol. Hg. 33 p. ct	cer cured, ex. acerbation, then gt imp't o m s c
57	10	F	O m c c, both, right left	4 years 3 weeks	Hyp rhinit worse by	Adenoids	No	Hyp tons, hyp rhinitis, ecz narium aden.	Yes, all	Adenoids tonsils removed, ether	Politzer, siegle, Fowler's, spray	much imp'd: 2d op for adn 3 mos later
58	23	F	O m sub-acute ? suppur left, recurrence after 2 years	1 week	cold 3 w'ks ago; aden.				None		Earkit, politzer	improved
59	6	F	O m s c, left	2 years	Teeth are carious	Dermatitis polyp			None		Earkit. dentist	not returned
60	13	M	O m s, acute, left recurrence after 3 ys	1 month	Measles				None		Earkit. politzer	improved
61	52	M	O m c c, left O m c c, right	5 years 2 years	Ecchon sept		Yes	Ecchond left	None		Catheter, menthol siegle K I delstanch	right side mch improved
			recur'nce after 7 mos	3 weeks	Cold		Yes		None		Catheter siegle, zn stearate ac. boric hydro-brom acid	improved
62	18	M	O m s c, right O m c, subacute. left	6 months	Swimm'ng		Yes		Forks. watch		Politzer, alcohol	improved
63	22	F	O m c acute both, after 6 dys rt sup	1 week	"Grippe"		No	Acute nasopharyngitis	Weber forks voice		Cocain resorein, politzer	cured
64	12	F	Nerve deafness	3 years			Yes		Fork watch weber		Politzer	not improved
65	11	F	O m sub-acute suppurative rt	2 years	"Cold"				Yes, all		Cleansing, politzer	cured
66	23	M	O m c c both, adhesive (?)	Since childhood left, 2 years rt	Adenoids	Adenoids	Yes, both	Ecchon sept rt hyp inf turb lt, hyp tonsils adenoids	Forks, weber watch	Cauter. turb	Inflation	Improved
67	40	M	Impacted cerumen both	12 years			Yes, left	Chr pharyng	None		Keroline-ichth to nasopharynx sod	Cured
68	4	M	O m s c right	8 mos	chr rhinitis adenoids	Carious teeth adenoids eczema auricle		Chr cat rhinitis adenoids	None	Advised op. on adenoid	bicarb. removed cerumen	Not returned
69	52	M	O m c c right O m s acute left	14 mos 14 mos	"Cold" defl sept		Yes, both	Defl sept left chr pharyng	Weber, watch, forks		Earkit, politzer Catheter menthol spray, siegle	O m s ac cured (acute symptoms subside') chr symptoms not imp'd
70	26	F	Acute infl attic, rt	1 week			Yes	Chr pharyng	None		Boroglyc tamp politzer	Not returned
71	33	M	O m s c left attic	15 years	Defl sept	Cerumen not im	NO	Ulcerated sept defl sept sym	Yes, all		Keraline-ichth in nose, politzer	Not returned

70	26	F	Acute infl attic, rt	1 week			Yes	Chr pharyng	None		Catheter menthol spray, siegle	("some symptoms subside") chr symptoms not imp'd
71	33	M	O m s c left attic o m c subacute rt	15 years 15 years	Defl sept	Cerumen not impacted, right	No	Ulcerated sept defl sept syn echia after opr chr pharyng	Yes, all		Boroglyc tamp politzer Keraline-ichth in nose, politzer	Not returned Not returned
72	24	F	O m c c both labyrinth	2 years	Chr rhin	Labyrinth	Yes, both	Chr cath rhin hyp mid turb chr foll pharyn	None		Politzer later cath keralin-ichth, nose and spray	Improved
73	48	M	O m c acute both attic	10 days both	"Cold" chr rhinitis		Yes, both	Rhinitis chr catarrh	Weber, watch, forks		Cocain resorcin politzer, cath	Cured
74	46	M	O m c c both	6 years both	Defl sept		Yes, both	Defl sept left ecchond left	Weber, watch, forks		Politzer, siegle	Improved
75	35	F	Furuncle right attic	1 week			Yes		None		Cocain resorcin politzer earkit	Cured
76	42	F	O m s c right	since child hood	Chr rhinitis		Yes	Chr cat rhin	None		Earkit, politzer	Improved
77	22	F	Large perforation lobe lft	4 years					None			Not returned
78	20m	M	O m s c both	1 year both	Smallpox chr rhinitis	Eczema canal	No	Chr cat rhin	None		Earkit Politzer	Improved
79	39	F	O m c subacute right recurrent	1 week		Cerumen ecz canal	Yes		None		alcohol ½ ung. hydg. to ecz. ol morrh Politzer cocain resor.hydr ol for ecz	returns after 1 year recurence Cer cured Improved
80	37	F	O m c c both	2 yrs, both							Remove cerumen	O m c subac
81	22	F	O m s c right attic o m c c left	Since child short time		Attic granula. { right	No No	Chr fol pharyn	None Watch voice forks (c_2)		hot water douche Politzer spray	Not returned
82	44	F	O m c subacute right	2 weeks	Adenoids	Adenoids	No				H_2O_2 politzer	Not returned
83	20	F	O m s acute left mastoiditis	8 weeks		Carious teeth	No ?	Few adenoids	None		attic syring Ag NO_3	
	s c		O m c acute right later, furuncle	1 week ?		Furuncle	Yes		Yes, all	Mastoid operation	Politzer spray ment Operation politzer cath	Not returned Cured
			O m s acute right	3 days		Mastoiditis ?					Cocain resorcin, hot water douche, polit	Cured
											Furuncle syring and hot foment	Cured
84	60	F	Menieres disease ? rt	3 months						Paracen M T	Cleaning leeches camph phenique for 2 days, then paracen	Cured
85	62	M	O m c acute right attic	3 weeks	Chr rhinits	Attic	Yes Yes		Voice, forks		Politzer catheter menthol	Not improved
86	30	F	Impacted cer both	3 months		Carious teeth	Yes	Nasal polpi	None		Cocain resorcin	Not returned
87	1	M	O m c subacute both	4 months	Adenoids	Adenoids	?	Adenoids	None		Remove ceru by syr. politz. ref. to dentist	Cured
88	28	M	Mixed case right	2 weeks	cold hyp turb	Syphilis	No	Acute nasopha hyp inf turb lt	Yes, all		Syringing and politzer	Not returned
89	27	F	O m c adhesive both	6 yrs. right 1 mo. left	Explosion		Yes, right	Atrop. rhinitis	Watch, voice, forks		Politzer, K I	Not returned
90	48	M	Impact cerumen both	6 yrs. right 5 years left		Syphilis	Yes, both	Chr. naso-pharyngit (snuf'g)	Weber, forks		Siegle, catheter menthol Remv'd ceru. siegle, cath ment, K.I. Mass	Improved Cured

EARKIT.—This Earkit, devised by Dr. J. E. H. Nichols, consiststs of a bottle containing H_2O_2, ($\frac{3}{ss}$) a glass medicine dropper, some absorbent cotton and an Ideal Syringe. Full directions for use are printed on the box.

Table 2.

					Nose		Operation	Treatment.	Result.

Table 2.

Case No.	Age.	Sex.	Diagnosis.	Duration.	Cause.	Complication.	Tinnitus.	Nose and Throat.	Tests.	Operation.	Treatment.	Result.
91	31	M	O m c c atrophic left	3 years	Defl. Sept.	Artic rheum.	Yes	Defl. sepl. atrop. rhinitis	Weber, watch, fork (C_3(		Politzer spray	Cured
92	64	F	O m c sub-acute, rt. attic	1 week			No		None		Hot water douche politzer	Not returned
93	19	M	O m c c both	Since childhood		Cerumen frost bite auricle rt	Yes, right		Watch, fork (C_3)		Remoyal cer. politzr Ichthyol keral. to auricle	O m c c improved cerumen cured
94	5	M	O m s acute lft. rec. ? Recurred (left)	2 days 2weeks			?		None		Ear kit. ol. morrh Politzer earkit	Cured aft 3 mo Cured
95	8	F	O m s sub-acute both	6 years, both	Adenoids Hyp rhin.	Adenoids ecz. canal	No	Adenoids hyp. rhinitis right	Watch, voice, fork (C_2)	Adenoids removed	pol. keraline ich. to canal	improved
96	45	F	Otalgia, both	6 days both	Hyp. rhin.		?	Chr. hyp. rhin.	None		Politzer spray	Not returned
97	47	F	O m c acute right mastoiditis	2 weeks			Yes		None		Ice bag to mastoid	Not returned
98	45	F	Furuncle canal left	6 weeks	Hyp. turb.	O m c c	Yes	Hyp. mid. turb left	Watch, fork (C_2)		Boroglyc. tampon Politzer	Improved
99	3	M	O m s c right recurrent	1 year 6 weeks	Adenoids chr. rhin.	Adenoids	No	Purulent rhin. adenoids	None	Adenoids removed	Politzer spray ear kit.	Cured
100	44	F	O m c c both	10 years			Yes		Weber, watch, forks		Catheter	Not returned
101	31	F	O m c c right	Since childhood	Exost. sep.		Yes	Exost. sept. left	Watch, forks		Pol. spray, siegle, Masseur	Improved
102	31	M	Impact cerumen left	1 year		O m c c	Yes	Perf. sept from operation	Watch, voice forks		Cerumen removed soda bicarb. spray nose	Cer. cured
103	39	F	O m c c both	2 years left 5 days, right	Chr. rhin.		Yes, both	Chr. cat. rhin.	Weber, watch, forks		Politzer catheter menthol, siegle K. I. Masseur gelsemii, strych	O m c c imp'd after 9 months much imprv'd
104	17	F	O m c c left o m c acute rt. attic	2 weeks		Attic right	Yes, right		None		Hot water douche	Not returned
105	15	M	O m c acute attic both	5 days	Adenoids	Adenoids	Yes, both	Adenoids	None		Cocaine resorcine hot water douc. pol.	much improved
106	40	M	O m c c sympathetic enlargment		Defi sept. teeth	Carious teeth	?	Defi- sept. left	None		Referred to dentist politzer	Not returned
107	33	F	Otalgia, right	1 week	car's teeth		No		None		Politzer rhin comp.	Cured
108	18	F	O m c acute left	3 weeks	Chr. rhin.		Yes	Chr. rhinitis Naso-pharyng	None		Poli. cocain resorc. douche spray	Not returned
109	45	F	O m c acute both attic, right	4 days both	Nasal catarrh	Attic right	Yes, both	Chr. pharyng. ulcerat. spt.	Watch, forks		Cocain resorcin hot douche politzer	Improved
110	50	F	O m c sub-acute left recurrent	1 month			Yes	Chr. pharyng.	Watch		Politzer spray siegle Blaud's pills	Not returned
111	19	F	O m s c right O m c c left	1 year	Nasal stenosis		No	Hyp inf tur lft chr. pharyng.	Watch, voice, forks		Politzer H_2O_2 spray	Not returned
112	35	M	O m s c left	Since childhood	From a blow		No		Weber, watch, fork (c_2)		Cleansed, politzer, alcohol. catheter, menthol K. I.	Improved
113	35	M	Cyst behind auricle right	30 years								Not returned
114	60	M	Mixed base left	6 years			Yes		Watch, voice, forks		Politzer referred to nerve department	Not returned
115	15	M	O m s c right O m c c left	7 years both	Ecch. sept. scarlet fev.		Yes, both	Ecchon. sept rt	Watch, voice, forks		Earkit. politzer	Improved
116	45	F	O m c c left	4 years	Chr. rhin.		Yes	Chr. hyp. rhin.	Weber, ? watch fork			Not returned
						Attic	Yes	Chr follic phar			Cocain resorcin hot	Improved

113	35	M	Cyst behind auricle right	30 years								menthol K. I.	Not returned
114	60	M	Mixed base left	6 years			Yes		Watch, voice, forks			Politzer referred to nerve department	Not returned
115	15	M	O m s c right O m c c left	7 years both	Ecch. sept. scarlet fev.		Yes, both	Ecchon. sept rt	Watch, voice, forks			Earkit. politzer	Improved
116	45	F	O m c c left	4 years	Chr. rhin.		Yes	Chr. hyp. rhin.	Weber, ? watch fork				Not returned
117	40	F	O m c acute left attic	2 weeks	"cold"	Attic	Yes	Chr follic phar (snuffing)				Cocain resorcin hot water douche	Improved
118	20	F	O m s c right	5 years	Exost. sept	Granulations polyp.	Yes, both	spur. left sept.	Watch, voice, Weber	Removal polyp		Ear kit. politzer chromic acid to gran	Not much improved
			O m s c left after 7 months	5 years						Rem. ossicles ? both sides		Ag N O_3 to granulations rt. chr. acid do	after 5 mos, rt. cured, lft. imp.
119	22	F	O m c acute left	4 days	"cold" chr. rhin.		Yes	Ozena	None			Cocain resorcin hot douche politz'r naso pharyng. spray	Cured
120	21	F	O m c c mixed	3 years	Ecch sep "cold" pharyng.		Yes	Ecchond. sept. right	Watch, voice, forks			Catheter K. I.	Not returned
121	25	F	O m c acute right mastoiditis	7 weeks		Pulse 100 Temp. 100½	Yes		None			Earkit. ice bag politzer H_2O_2 hot water douche	Cured
122	20	M	O m c c mixed left	2 years	Spinal meningt's		Yes	Ecchond. left sub-act phar.	Watch, forks			Politzer delstanche syr. ferri. iodid.	Not returned
123	18	F	Otalgia right	2 weeks	Teeth	Carlous teeth anæmia	Yes		None			Syr. Ferri. Iodide Referred to Dentist.	Not returned
124	8	M	O m c acute, right o m s c left	1 week	Adenoids	Adenoids	Yes rt.	Ulc. sept. left adenoids left	Watch voice forks			Cocain Resorc. right earkit. left. Nose: keral. ichth. & spray politzer	Cured
			(same 4 mo. later) Eczema auricle rt.									Ac. bor. 1-10 lan.	Cured
125	3	M	o m c c right	1 month	Adenoids	Adenoids	No	Adenoids	none			Politzer	Not returned
126	36	F	Impacted cerumen left	Many yrs.		Anæmia	Yes	Ulcerati'n sept both sides	None			Removed cerumen H_2O_2 & Ag NO_3 to ulcer menth. spray	Cured
127	27	M	O m c acute, left	1 week	"Cold" pharyng.		No	Sub-acute cat. pharyngitis	Watch voice forks			Pol. spray menthol hot water douche	Cured
128	10	F	O m s c right o m s c old mastoid sinus & necrosis, lft	1½ years both	Adenoids scarlet fev. mastoid.	Adenoids Necrosed mastd.	Yes rt,	Adenoids in vault	Yes, all	Osteotomy for mastoid nec. [see photo.]		H_2O_2 & alc. for rt. Dressings	Improved Cured after operation
129	3	F	O m s c both	2 years	Chr, rhin	Bronchitis		Rhinitis, chr. cat.	None			Earkit politzer	Not improved
130	60	M	O m c c both Labyrinthine	20 yrs. rt. 4 yrs. left.		Labyrinth	Yes both	Pharyng. sicca	Yes, all			Politzer spray K. I.	Not returned
131	32	F	O m c sub-acute, rt. o m s c left	2 months	"Grippe"		No		Yes, all			H_2O_2 catheter menthol	Not returned
132	25	F	O m c c both	2 wks, rt.	"Cold" Defl. sept.		No	Deflect. sept.	None			Politzer: phen.	Not returned
133	47	F	O m c c both adhesion, left	3 yrs. both	Chr. hyp. rhinitis		Yes both	Chr. hyp. rhin.	Yes, all			Politzer spray ment. catheter delstanche gelsemii	Mch improved aft'r 11 months
134	43	F	O m c acute, right Impact cerumen (o m c c) left	7 days 3 months	Apoplexy	Arterial scler. o m c. c left	Yes rt.		Watch, forks			Removal cerumen politzer	o m c acute improved Cured

133	47	F	O m c c both adhesion, left	3 yrs. both	Defl. sept. Chr. hyp. rhinitis		Yes both	Chr. hyp. rhin.	Yes, all		Politzer spray ment. catheter delstanche gelsemii	Mch improved aft'r 11 months
134	43	F	O m c acute, right Impact cerumen (o m c c) left	7 days 3 months	Apoplexy	Arterial scler. o m c. c left	Yes rt.		Watch, forks		Removal cerumen politzer	{ o m c acute improved Cured cerumen
135	29	F	O m c acute, right attic	4 days		Attic	Yes		Watch voice forks	Paracentesis after 2 days	Cocain-resorcin Hot water douche politzer spray H_2O_2 ice bag	Improved
136	5	F	O m c sub-acute both	2 yrs. both	Adenoids	Adenoids	No	Adenoids	None	Adenoid removed	Politzer ol. morrh.	Cured
137	3	N	O m c sub-acute both	1 year			No		None		Politzer	Not returned
138	25	M	Impacted cerumen both	6 days, left			Yes, left		None		Removal cerumen sod. bicarb. politzer	Cured
139	46	F	Impct. cerumen, rt. o m c c left	10 months	Using hair pin		?		None		Removal cer. Sod. bicarb. right politzer left	Cured
140	4	M	O m s sub-acute both	3 yrs both	Adenoids	Adenoids	No	Adenoids	None		Hot water douche	Not returned
141	24	F	O m s acute, right	3 weeks	"Grippe"		No	Chr. hyp. rhin.	Yes, all		Earkit. spray politzer	Not returned
142	7	M	O m c sub-acute both	1 year both	Chr. rhin. { Nasal stenosis ad'noids	Adenoids cerumen	No	Adenoids syn. sept. & inf turb left. Hyp. tonsils	Yes, all		Spray politzer removal some cer. both	O m c subac. not returned
143	40	F	O m s c right attic	6 months		Attic cerumen	Yes		None		Removal cerumen politzer cath. menth Masseur	O m s c cured cured cerumen
144	55	M	O m c c both mixed case	7 mos. rt. 2 mos. left			Yes right No left		Weber, watch, voice, fork(C_2)		Politzer delstanche	Not returned
145	18	M	O m c sub-acute both	2 months right 1 month left	"Snuffing salt water" adenoids	Adenoids	Yes, both	Hyp. inf. turb. left adenoids	Weber, watch, voice, fork C_2 later all forks	Removal adenoids	Catheter spray pol. ichth. keraline naso phar. delstanche Douglas spray	Improved 10 months
146	36	F	O m c s healed perf. of attic rt.	4 years	After taking ether.	Attic	Yes	Hyp. tonsils	Watch, voice, forks, Weber		Politzer spray ment	Improved
147	5	F	O m chr. sup. right [Has had op. for adenoids and polyp of ext. canal]	2 years	Measles adenoids	Adenoids recurrent attic	No	Hyp. tonsils adenoids	None		Politzer alcohol H_2O_2 Ag N O_3 to perf. syr. fer. iodid.	Improved
148	53	M	Impacted cerumen both	8 days rt.				Polyp. mid. turb.	None		Removal cer. sod. bicarb.	Cured
249	28	F	O m c c both	4 years both			Yes, both		Weber, forks		Ref. to nerve dept. for ex. shows no nerve dis.	Improved
150	50	F	O m s c healed both (recurrent)	1 mo. both		Some cer'mn rt. Calc. plates left	Yes, both		Yes, all		Politzer masseur.	Improved
151	60	F	Impact cerumen left Furnucle canal	4 weeks			Yes ?		None None	2 days later incised	Removed cerumen politzer Cleansing, campho. phenique	Cured Cured
152	62	F	Impact cerumen rt. O m c c left	4 weeks	Defl. sept.		Yes, rt.	Defl. septum. pharyng. sicca	None		Sod. bicarb. removal of cerumen politzer catheter menthol	Cer. cured Improved o m c c
153	36	F	Mixed case both	Since chil'hd rt 1 year lft	Chr rhin. "cold		Yes, both	Chr. hyp. rhin.	Yes, all		Politzer spray menthol	Not returned
154	13	M	O m s c right sinus into mast ant. O m s c left sinus into attic	11 yrs. both	{ Defl. sep. scar. fev. ad'noids	Adenoids mast'd right Attic left	Yes, left	Sept. deft. rt. elong. uvula adenoids	Yes, all		Politzer H_2O_2 washing out sinuses	Improved
155	55	F	O m c c both	27 years					Weber, watch		Politzer catheter	Much improved

136	5	F	O m c sub-acute both	2 yrs. both	Adenoids	Adenoids	No	Adenoids	None	Adenoids removed	Politzer ol. morrh.	Cured
137	3	N	O m c sub-acute both	1 year			No		None		Politzer	Not returned
138	25	M	Impacted cerumen both	6 days, left			Yes, left		None		Removal cerumen sod. bicarb. politzer	Cured
139	46	F	Impct. cerumen, rt. o m c c left	10 months	Using hair pin		?		None		Removal cer. Sod. bicarb. right politzer left	Cured
140	4	M	O m s sub-acute both	3 yrs both	Adenoids	Adenoids	No	Adenoids	None		Hot water douche	Not returned
141	24	F	O m s acute, right	3 weeks	"Grippe"		No	Chr. hyp. rhin.	Yes, all		Earkit. spray politzer	Not returned
142	7	M	O m c sub-acute both	1 year both	Chr. rhin. {Nasal stenosis ad'noids	Adenoids cerumen	No	Adenoids syn. sept. & inf turb left. Hyp. tonsils	Yes, all		Spray politzer removal some cer. both	O m c subac. not returned
143	40	F	O m s c right attic	6 months		Attic cerumen	Yes		None		Removal cerumen politzer cath. menth Masseur	O m s c cured cured cerumen
144	55	M	O m c c both mixed case	7 mos. rt. 2 mos. left			Yes right No left		Weber, watch, voice, fork (C_2)		Politzer delstanche	Not returned
145	18	M	O m c sub-acute both	2 months right 1 month left	"Snuffing salt water" adenoids	Adenoids	Yes, both	Hyp. inf. turb. left adenoids	Weber, watch, voice, fork C_2 later all forks	Removal adenoids	Catheter spray pol. ichth. keraline naso phar. delstanche Douglas spray	Improved 10 months
146	36	F	O m c s healed perf. of attic rt.	4 years	After taking ether.	Attic	Yes	Hyp. tonsils	Watch, voice, forks, Weber		Politzer spray ment	Improved
147	5	F	O m chr. sup. right [Has had op. for adenoids and polyp of ext. canal]	2 years	Measles adenoids	Adenoids recurrent attic	No	Hyp. tonsils adenoids	None		Politzer alcohol H_2O_2 Ag N O_3 to perf. syr. fer. iodid.	Improved
148	53	M	Impacted cerumen both	8 days rt.				Polyp. mid. turb.	None		Removal cer. sod. bicarb.	Cured
249	28	F	O m c c both	4 years both			Yes, both		Weber, forks		Ref. to nerve dept. for ex. shows no nerve dis.	Improved
150	50	F	O m s c healed both (recurrent)	1 mo. both		Some cer'mn rt. Calc. plates left	Yes, both		Yes, all		Politzer masseur.	Improved
151	60	F	Impact cerumen left	4 weeks			Yes		None		Removed cerumen politzer	Cured
			Furnucle canal				?		None	2 days later incised	Cleansing, campho. phenique	Cured
152	62	F	Impact cerumen rt. O m c c left	4 weeks	Defl. sept.		Yes, rt.	Defl. septum. pharyng. sicca	None		Sod. bicarb. removal of cerumen politzer	Cer. cured Improved o m c c
153	36	F	Mixed case both	Since chil'hd rt 1 year lft	Chr rhin. "cold		Yes, both	Chr. hyp. rhin.	Yes, all		catheter menthol Politzer spray menthol	Not returned
154	13	M	O m s c right sinus into mast ant. O m s c left sinus into attic	11 yrs. both	{Defl. sep. scar. fev. ad'noids	Adenoids mast'd right Attic left	Yes, left	Sept. deft. rt. elong. uvula adenoids	Yes, all		Politzer H_2O_2 washing out sinuses	Improved
155	55	F	O m c c both	27 years			Yes, left		Weber, watch, voice, fork C_2		Politzer catheter menthol	Much improvd
156	36	F	O m s acute left	1 month	"Grippe" ecchon sep			Ecch. sept.	None		Politzer	Improved
157	47	F	O m s acute left	4 months	"cold" & poulticed	Otalgia carious teeth	Yes No		None		Politzer blauds pills, ref'd to dentist	Improved
158	38	F	O m s sub-acute rt. mixed O m c c left	2 mos. rt.			Yes, rt.		None		{Politzer cocain resorcin hot douche menth.	Cured
159	½	M	O m s acute both	4 weeks	"Grippe"				None		Earkit.	Not returned
160	21	M	O m s c right o m s c attic left	5 yrs. rt.	After typhoid	Attic left	Yes, rt.		Yes, all		Politzer syringe ear attic catheter and menthol	Improved
161	22	M	O m s acute right attic	5 weeks	Chr. rhinit.	Attic	Yes	Chr. naso-pharynx	None		Politzer syringed attic	Not returned

												douche menth.	
159	½	M	O m s acute both	4 weeks	"Grippe"					None		Earkit.	Not returned
160	21	M	O m s c right o m s c attic left	5 yrs. rt.	After typhoid	Attic left	Yes, rt.			Yes, all		Politzer syringe ear attic catheter and menthol	Improved
161	22	M	O m s acute right attic	5 weeks	Chr. rhinit.	Attic	Yes	Chr. naso-pharynx		None		Politzer syringed attic	Not returned
162	30	F	O m c c both	5 yrs. both	"Cold"		Yes			None			Not returned
163	21	F	Impacted cerumen both	1 day			Yes			None		Removed cerumen politzer	Cured
164	21	F	Impacted cerumen right both	2 weeks		O m c c both occipital pain	Yes, rt.			Yes, all		Removed cerumen politzer	Cer. cured o m c c not returned
165	15	F	O m c c both	2 yrs. right	Ecch. sept. blow	Anæmia	Yes, rt.	Ecch. sept. rt.		Yes, all		Politzer spray syr. fer. iod.	Improved
166	8	F	o m s acute left attic o m s c right	4 yrs both	adenoids	attic adenoids cerumen right	no	hyp tonsils adenoids		watch		e a kit left Ag No3	o m s c
167	20	F	o m c c both	6 mos both	chr atroph rhinitis	adenoids (few)	yes both	ulcerat of cart sept. both atro rhinitis both		watch, voice, forks		cerum removed r't Politzer syr fer iod politzer H2 O2 naso pharynx ichthyo keralin sep Ag No3	improved cer cured improved
168	36	F	o m c c both	2 yrs both	chr atroph rhinitis	gen'l debility	yes both	chr naso phary catarrh		yes all		politzer catheter spray, nerve ex neg	not improved
169	50	M	o m c c both	1 yr both	deflect sept		yes left	defl sept left chr phary		weber watch		politzer cath. menthol	not ret'd
170	8	M	o m c subacute right recurrent	5 yrs	diptheria adenoids		no	(aden. remvd 1 year ago)		yes all		politzer	not ret'd
171	18	M	o m c sub acute both	5 yrs		cerumen, both	yes both			watch, voice, forks		politzer spray	o m c subac improved
172	30	F	o m c c both recurr't	18mos right	chr hyp rhinitis		no	chr hyp rhinit chr fol phar		yes all		cath. menth. ker ich. and phar. dilstanche	cer cured improved
173	38	M	o m c c both	3 yrs left						none		cath. menthol spray	not ret'd
174	38	M	o m c c both	2 yrs	cold		yes left yes			none		catheter menthal K. I. later	interr't'd treat improved
175	35	F	o m c c both	8 yrs									not ret'd
176	19	M	Impacted Cer. both	1 week			yes both yes			yes all none yes all		cerum removed. politzer.	cured
177	30	M	o m c c both	5 yrs right 18 mos left	hyp rhinitis		yes left	hyp rhinitis				politzer cath. menth	ref'd to nerve dept for exam
178	15	M	Impacted Cer. both	3 days right			yes			none		soda bicarb. remov'd cer. politzer menthol	not ret'd cured
179	36	F	Impacted Cerumen both	3 weeks			no	ecch sept rthyp inf turb left adenoids		yes all after removal cerum'n none	spur removed in throat dept	removal cerum catheter and menthol cocain resorcin ear kit, politzer	cured
180	6	M	o m s acute attic both	10 days b'th	adenoids	adenoids							improved
181	25	M	o m c c right, impact cerum left	1 mo	cold		yes	chr cat phary		none		removed cerumen	cerumen cured
182	21	M	o m s c attic right, impact cer'mn left		scarlet fev	cerumen right o m c c left	no			yes all		ear kit. cer. remov'd politzer Ag No3 attic	o m c c not ret'd much improv'd but returns 7 mos later with cer & deafness cured.
183	34	F	o m c acute left	1 mo									

Case No.	Age	Sex	Diagnosis.	Duration.	Cause.	Complication.	Tinnitus.	Nose and Throat.	Tests.	Operation.	Treatment.	Result.
												not returned

Case No.	Age.	Sex.	Diagnosis.	Duration.	Cause.	Complication.	Tinnitus.	Nose and Throat.	Tests.	Operation.	Treatment.	Rsult.
184	22	M	Impact cer'm'n both	3 days	blow on ear		yes		none			not returned
							yes		none		soda bicab. removal wax	cured
185	33	M	o m c right o m s subacute left	since childhood 2 mos	chr rhinitis blowg nose		yes left	chr rhin phary	yes all		ear kit. politz. spray cath-left men.pol. rt. later left borogly c. & pol alco'l 50 per ct but ret. to boroglyc syr fer. iod. later tr. iod to granulations	improved after 5 months
186	36	M	Impacted cerumen& o m c c both	3 days			yes yes		yes all		soda bicarb. cer removed cath. & men.	cerm cured improved o m c c
187	41	M	Furuncle canal right	6 weeks			yes		none		boroglyc. tampon.-	cured
188	27	F	impacted cer both	4 days right				ulcer sept. rt	none		sod. bicarb. removal cer. politzer spray	cured
189	10	M	o m c sub ac't right o m s ac't left	1 week rt	adenoids	adenoids	yes right	aden removed hyp tonsils	none	aden double tonsill't	earkit politz'r spray menthol to nose & throat Dobell	cured much improv'd
190	20	M	o m s subacute both	9 mos ? rt			left yes right no		watch, voice, forks		ear kit pol. cath. alc. dil. later plumb sub acet delstanche Ag.	after 2 months improved
191	18	M	o m c c both	3 wks both		eczema canal both	no		watch, voice, forks (C2)		No3politzer ichthyol for eczema	not ret'd
192	31	F	o m c c atroph right	13 years	typh fever chr rhinitis		yes both	atrop rhin both eustat ts patul	watch, voice, forks		politzer siegel cath. ref'd to nerve dept	not improved
193	8	M	o m c subacute both	1 mo both			yes both	ulcer't sept left	watch, voice, forks (C2)		politzer ulcer H2 O2 & ichthyol ker	much improv'd
194	17	M	o m s acute right	5 years	recur from childhood adenoids	adenoids small quantity	yes	chr naso pha'y hyp tonsils adenoids	yes all		cath. menthol spray	improved
195	7	F	o m c subacute both	3 yrs both	chr rhinitis		yes right	chr cat rhin	watch		politzer	much improv'd
196	16	F	o m s acute rt attic furuncle, recurr aftr 6 weeks	1 mo		furuncle rt	yes		none		ear kit pol. douches boroglyc. cath. treat. for furuncle 10 p. c. carb. ac.	improved
	s c		o m s acute left mas	short time						foreign bodies removed from canal	boroglyc. tamps	improved
	s c		for bodies in canal 6 weeks later malinger		malinger						H2O2 camph phen.	cured
197	67	M	o m c c both	1 year rt 4 mos left	from fall down st'rs deft sept	incip paral agitans (nerve dep)	yes right	defl sept rt chr naso pha'y	watch, forks		politzer catheter refer'd to nerve dept.	improved
198	30	F	o m s c left	life			yes		none		alc. water instillation politzer	improved
199	6	F	o m s c both	4½ yrs both	adenoids	adenoids granulations	yes left	adenoids	none	removal adenoids after 1 mo	politzer spray. H2O2 later Ag No3 then pb acetat	improved
200	35	M	o m s c left recurr	2 weeks	scarlet fev originally 21 ys before		yes		none		ear kit politzer	not ret'd
201	9½	F	ref to Dr,	old case					none			
202	14	M	post cervical abscess (not mastoid)	9 days								not ret'd
203	17	F	otalgia	4 yrs	carious teeth	carious teeth	no		none		refer'd to dentist, pil warburg	not ret'd
204	28	F	o m s c both recurr	4 yrs both fr childh'd	grippe	granulations	no	patulous tubes	watch, voice, forks		politz cath menth'l siegle Ag. No3	much improv'd after 3 months
205	54	F	o m c c both	6 mos			yes both		watch, forks			not ret'd
			o m s c rt	4 yrs ago		mastorditis 1 wk			none		ear kit pol cer rem'd soda bicab boro glyc	improved and removed, imp.

200	35	M	o m s c left recurr	2 weeks	scarlet fev originally 21 ys before		yes		none		cal kit politzer	
201	9½	F	ref to Dr,	old case					none			not ret'd
202	14	M	post cervical abscess (not mastoid)	9 days								
203	17	F	otalgia	4 yrs	carious teeth	carious teeth	no		none		refer'd to dentist, pil warburg	not ret'd
204	28	F	o m s c both recurr	4 yrs both fr childh'd	grippe	granulations	no	patulons tubes	watch, voice, forks		politz cath menth'l siegle Ag. NO_3	much improv'd after 3 months
205	54	F	o m c c both	6 mos			yes both		watch, forks			not ret'd
206	20	M	o m s c rt	4 yrs ago		mastorditis 1 wk			none		ear kit pol cer rem'd	improved and
			recurrent	1 mo							soda bicab boro glyc	removed, imp.
			with mastoiditis	1 wk					watch, forks		tamp camph phiniq.	after 8 months
			o m s crecurr after 4 yrs	1 mo		impacted cerum	no				cocaine resorc	cerum cured
207	19	M	o m c c subac both	4 yrs left	chr naso pharyng		formerly?	chr naso pha'y	watch, forks		siegle cath spray	improved
208	54	M	impact cerume both	20 yrs right			no		none		sod bicab removl cer	cured
			o m c c both	4 days left			?					
209	2½	M	o m c subacute both	8 mos	injury to throat	cerum left		hyp tonsils	none	removal of left tonsil	politzer sieg syr fer iodid	cured cerumen not ret'd o m c subac
210	7	F	o m s c left	4 yrs								
211	6	M	o m s c c left	1 mo	measles adenoids		no	pharyngitis fol	none		cleaning ear kit	not ret'd
							no	adenoids	watch	adenoid operation	politzer H2 O2 c 1 o syr fer iod	cured
212	29	M	othaematoma rt circumscribed	3 wks			no		none		compression & cold application	not ret'd
213	26	M	o m c c both	1 day ?		impact cerum	no	pharyngitis tonsilitis	all		menthol spray cath	cerumen cured
214	53	M	impact cerum rt	1 yr							gargle kno4 fe	not ret'd
			otitis adhesiv left	2 mos			yes both		watch, weber forks			for o m c c
215	19	F	Impacted cerumen both	2 wks both								not ret'd
						O m c c both adhesiva	Yes, left	Atrop. rhin. rt. Fol. pharyng.	All		Removal ceru. with sod. bicarb. catheter and menthol	Cured
216	31	F	Furunculosis both persist. recurrent	1 week	Carious teeth	Carious teeth	Yes	Pharyngitis	None	Incision furuncle	Antiseptic cleansing camphor phenique rem teeth by dentist	Cured
217	37	M	Facial paralysis rt.	1 week					None		Ref. to nerve dep't	Not returned
218	20	F	O m c c both	3 months	Post-nasal catarrh	Impact cerumen left	Yes, right	Post-nasal catarrh chr. pharyng.	Weber and forks		Cerumen removed catheter & menthol	Cer. cured improved o m c c
219	22	F	Vesicula eczema auricle right	1 week			No		None		Boric acid 20 p Sal. acid 10 p. } ung	Improved
220	21	F	O m c sub-acute rt. haemorrhagica left	3 weeks		Attic	Yes		None		Earkit. politzer	Not returned
221	21	F	O m c acute left	3 days		Carious teeth	Yes		Weber, watch, forks		Cocain resorc. later hot water syr. pol. catheter delstanche	Improved
222	26	F	O m s c both	23 years	Scarlet fev	Gran. attic left	Yes, right		None		Earkit. politzer	Improved
223	20	M	O m s c right	10 days	Concuss'n frora expl		No		None		Earkit. politzer	Not improved
224	29	M	O m s c left	since chld.			No		None		Earkit. politzer	Not improved
225	37	F	O m c c both	14 years	Chr. cat'rh		Yes, both		None			Not returned
226	45	F	O m c c both	5 mos.			No		None		Politzer and spray	Not returned
227	14	F	O m c c both	3 years	Adenoids	Formerly complic adenoids removed one year prev by Dr. P.	No	Pharyng. catarrh	Watch, voice, forks		Delstance politzer	Voice, hearing imp. but no improv for tests
											after 8 mos. catheter	improved

					from expl			No		None		Earkit. politzer	Not improved
224	29	M	O m s c left	since chld.									
225	37	F	O m c c both	14 years	Chr. cat'rh			Yes, both		None			Not returned
226	45	F	O m c c both	5 mos.				No		None		Politzer and spray	Not returned
227	14	F	O m c c both	3 years	Adenoids	Formerly complic adenoids removed one year prev by Dr. P.	No	Pharyng. catarrh	Watch, voice, forks			Delstance politzer after 8 mos. catheter	Voice, hearing imp. but no improv for tests improved
228	29	F	O m c c both with impacted cerumen	1 week	Chr. naso-pharyng.	Recurrent furunculosis Carious teeth	Yes, right	Chr. naso-pharyngitis	Yes, all			Removal cer. (soda bicarb) later boro-glyc. tampon syr. fer iod.	Cured returned after 2 months cerumen
229	16	M	O m c c adhesiva both	2 wks right 11 yrs left	Spur sept.	Impact cerumen left	Yes, both	Exostos. sept. right eczema nose	Yes, all			Cerumen rem. pol. del pneum. massage cath. Ag N O_3 ichthyol to nose.	Much improved
230	22	M	O m s c right O m c c left	7 years	Bathing pharyng.	Impact cerumen left	No	Pharyngitis	Watch. forks (C C_2)			Cerumen remov. left sod. bicarb. politzer earkit. (rt.) pol. Ag N O_3 ichthyol & ker. to pharynx	Cured cerumen improved
231	21	M	O m s acute left	7 days	Bathing chr. rhin.		Yes	Atrop. rhin.	Watch, fork (C_2)			Politzer menthol (spray)	Cured
232	49	M	Impacted cerumen both	4 days		O m c c left	Yes, both		None			Removal cerumen sod. bicarb. politzer	Cured
233	21	F	O m s acute left	1 day			No	Tonsilitis	Noue	Paracentesis		Hot water syringe politzer	Improved
234	22	F	O m c c both	6 mos.	Atrop. rhinitis	Syphilis ?	Yes, left	Atrop. rhinitis Naso-pharyng.	Weber, watch, voice, forks (C C_2)			Inflation delstanche catheter	Improved
235	45	F	O m s c both	20 yrs.		Attic right granulations rt.	Yes, both		Watch, fork (C)			Chromic ac. to gran sol. pb. acet. 3 gr. to H_2 O_2 1 oz.	Not improved after 4 months
236	40	M	O m c c left	4 yrs.			Yes		Yes, all			Politzer spray K. I.	Improved
237	19	F	Foreign body lft	6 yrs.		Impact cerumen	No		Yes, all			Removal cherry pit removal cerumen (soda bicarb.)	Cured
238	28	M	Impact cerumen rt. O m c sub-acute lft.	1 wk. left	Atrop. rhin. bathing		Yes, left	Atrop. rhinitis tonsilitis	None			Inflation hot douc. frequently	Cer. cured o m c sub-acut not returned
239	6	M	O m s c recurrent left	6 mos.	Adenoids	Adenoids	?	Hyp. tonsils adenoids	None	Rem. adenoids & left tonsils		Inflation politzer spray	Improved
240	57	F	O m c c both	1 wk. right	Nasal polypi.	Diabetes mel.	Yes, both	Polyp. ozena pharyng. sicca	Weber, watch, forks (C C_2)			Politzer delstanche catheter ref. to throat dept.	8 mo. improvd
241	20	F	O m c acute (attic) left	1 week	Naso-pharyng.	Attic	Yes	Naso-pharyng.	None			Catheter hot douche boro-glyceride.	Improved
242	11	M	O m s c both	9 yrs.	Measles hyp. rhin.		No	Hyp. rhinitis pharyngitis	Yes, all forks (C C_2)			Syr. fer iod. politzer ear kit. boric acid	Improved
243	13	M	O m c acute right	8 days	Bathing pharyng.		Yes	Enlarged tons. sub-acute pharyng.	Watch			Inflation	Cured
244	11	M	Hæmatomea can'l rt				Yes	None	None	Incision		Pol hot water douch	Cured
245	22	F	O m c sub-acute both	1 year			Yes, both	Pharyngitis pruritus of nose	Yes, all			Politzer sprav cath. ichthyol resorcin pharyng.	Not improved
246	19	F	Foreign body, left	8 mos.			Yes	Chr. tonsilitis Naso-pharyng.	Watch			Removal for. body (plug cotton) politzer	Cured
247	12	M	O m c c right O m s c left	5 yrs. both	Blow on ears chr. pharyngitis	Cerumen right granulations left	Yes, both	Hyp. pharyng.	Weber, watch, voice forks (3)			Right cer. removed Inflation chr. acid zin sulph 2 gr to 1 oz syr. fer. iod.	O m c c imp. cerumen cured
248	50	F	O m s c attic, right	Since childhood	Scarlet fev. hyp. rhin.	Attic	Yes	Hyp. rhinitis	None			Boric acid, zn sulph 1 gr to 1 oz. Douglas spray cath. menthol	Improved

229	16	M	O m c c advanced both	11 yrs left	Spur sept.	Impact cerumen left	Yes, both	Eczema right eczema nose			del pneum. massage cath. Ag N O_3 ichthyol to nose.	improved
230	22	M	O m s c right O m c c left	7 years	Bathing pharyng.	Impact cerumen left	No	Pharyngitis	Watch. forks (C C_2)		Cerumen remov. left sod. bicarb. politzer earkit. (rt.) pol. Ag N O_3 ichthyol & ker. to pharynx	Cured cerumen improved
231	21	M	O m s acute left	7 days	Bathing chr. rhin.		Yes	Atrop. rhin.	Watch, fork (C_2)		Politzer menthol (spray)	Cured
232	49	M	Impacted cerumen both	4 days		O m c c left	Yes, both		None		Removal cerumen sod. bicarb. politzer	Cured
233	21	F	O m s acute left	1 day			No	Tonsilitis	Noue	Paracentesis	Hot water syringe politzer	Improved
234	22	F	O m c c both	6 mos.	Atrop. rhinitis	Syphilis ?	Yes, left	Atrop. rhinitis Naso-pharyng.	Weber, watch, voice, forks (C C_2)		Inflation delstanche catheter	Improved
235	45	F	O m s c both	20 yrs.		Attic right granulations rt.	Yes, both		Watch, fork (C)		Chromic ac. to gran sol. pb. acet. 3 gr. to H_2 O_2 1 oz.	Not improved after 4 months
236	40	M	O m c c left	4 yrs.			Yes		Yes, all		Politzer spray K. I.	Improved
237	19	F	Foreign body lft	6 yrs.		Impact cerumen	No		Yes, all		Removal cherry pit removal cerumen (soda bicarb.)	Cured
238	28	M	Impact cerumen rt. O m c sub-acute lft.	1 wk. left	Atrop. rhin. bathing		Yes, left	Atrop. rhinitis tonsilitis	None		Inflation hot douc. frequently	Cer. cured o m c sub-acut not returned
239	6	M	O m s c recurrent left	6 mos.	Adenoids	Adenoids	?	Hyp. tonsils adenoids	None	Rem. adenoids & left tonsils	Inflation politzer spray	Improved
240	57	F	O m c c both	1 wk. right	Nasal polypi.	Diabetes mel.	Yes, both	Polyp. ozena pharyng. sicca	Weber, watch, forks (C C_2)		Politzer delstanche catheter ref. to throat dept.	8 mo. improvd
241	20	F	O m c acute (attic) left	1 week	Naso-pharyng.	Attic	Yes	Naso-pharyng.	None		Catheter hot douche boro-glyceride.	Improved
242	11	M	O m s c both	9 yrs.	Measles hyp. rhin.		No	Hyp. rhinitis pharyngitis	Yes, all forks (C C_2)		Syr. fer iod. politzer ear kit. boric acid	Improved
243	13	M	O m c acute right	8 days	Bathing pharyng.		Yes	Enlarged tons. sub-acute pharyng.	Watch		Inflation	Cured
244	11	M	Hæmatomea can'l rt				Yes	None	None	Incision	Pol hot water douch	Cured
245	22	F	O m c sub-acute both	1 year			Yes, both	Pharyngitis pruritus of nose	Yes, all		Politzer spray cath. ichthyol resorcin pharyng.	Not improved
246	19	F	Foreign body, left	8 mos.			Yes	Chr. tonsilitis Naso-pharyng.	Watch		Removal for. body (plug cotton) politzer	Cured
247	12	M	O m c c right O m s c left	5 yrs. both	Blow on ears chr. pharyngitis	Cerumen right granulations left	Yes, both	Hyp. pharyng.	Weber, watch, voice forks (3)		Right cer. removed Inflation chr. acid zin sulph 2 gr to 1 oz	O m c c imp. cerumen cured
248	50	F	O m s c attic, right	Since childhood	Scarlet fev. hyp. rhin.	Attic	Yes	Hyp. rhinitis	None		syr. fer. iod. Boric acid. zn sulph 1 gr to 1 oz. Douglas	Improved
249	48	F	O m c c both	3 days left			Yes, left		Watch, voice, Weber		spray cath. menthol Politzer Siegle cath-eter spray	Not improved
250	21	F	O m c acute, left	3 weeks	Water in ear Naso-phar.	Impacted cerumen	Yes	Naso-pharyng.	Yes, all		Cerumen removed (sod. bic.) catheter menthol	O m c acute improved cerumen cured
251	18	F	Impact cerumen, rt	1 week			Yes		Yes, all			Cured
252	22	F	O m c c both	2 years both	Chr. cat'rh	Pruritus of ext. aud. canal	Yes	Chr. cat. phar.	Yes, all		Boroglyc, tamp both politzer camph. phenique	Improved
253	40	M	Impact cerumen, rt.	2 weeks	Bathing		Yes		Watch, voice, Weber		Removed cerumen (sod. bicarb.)	Cured
254	26	M	Impact cerumen lft.	1 day			No		Watch		Cerumen removed	Cured
255	30		Impact cerumen both	2 days			No		None		Politzer cerumen re-	Cured

252	22	F	O m c c both	2 years both	Chr. cat'rh	Pruritus of ext. aud. canal	Yes	Chr. cat. phar.	Yes, all		Boroglyc, tamp both	Improved
253	40	M	Impact cerumen, rt.	2 weeks	Bathing		Yes		Watch, voice, Weber		politzer camph. phenique Removed cerumen (sod. bicarb.)	Cured
254	26	M	Impact cerumen lft.	1 day			No		Watch		Cerumen removed	Cured
255	30		Impact cerumen both	2 days			No		None		Politzer cerumen removed	
256	33	M	Impact ceru. both	2 days rt	Bathing	O m c c, both	Yes, right		Yes, all		Cerumen removed (sod bicarb) politzer	Cer cured Impr'd o m c c
257	26	M	O m s acute, right	2 weeks	Bathing		Yes		None		Insufflat boric acid	Not returned
258	4	F	O m s acute, left	2 years	Adenoids	Adenoids	?	Naso-pharyng. aden. tonsilitis	None		Spray for nose and throat.	Not returned
259	33	F	O m c c. both		Exost sept		Yes, both	Exost. sept.	Yes. all		Syr. fer. iod. ol morr cath. camph menthol, siegle, douglas formula	Much improve after 7 months
260	32	F	O m s c, right O m c c, left	2 years rt 24 years lt	Exost sept measles		Yes, both	Exost. sept. lt	Yes, all	Removal exostos	Bor. acid insuf. rt, cath- menthol, left	Improved
261	46	M	Impact cerumen, rt	4 weeks			Yes		Watch		Ceru. removed	Cured
262	27	F	O m c c, both	7 year both	Chr pharyn		Yes, right	Pharyn. chr.	Weber watch, voice 3 forks		Politzer, delstanche	Improved
263	25	F	O m s c, both	since child hood	Hyp rhin		Yes, both	Hyp. rhin, rt pharyngitis	Weber, watce voice 3 forks		Politzer spray, delstanche $H_2 O_2$ and Ag NO_3 ? al. acet-tart. then alcohol	Cured
264	9	M	O m s c, right	5 years	Pertussis	A little cerumen			None		$H_2 O_2$, politzer	Not returned
265	46	F	Impact cerumen, rt O m c c, left	2 years					Watch		Cerumen removed, politzer and spray, tamp boro-glyceride	Cured
266	25	F	O m c sup. right recurrent	6 years 4 months	Chr phary		Yes	Pharyngitis	Watch		Politzer catheter, spray	Not returned
267	4	M	O m s acute, left furuncle tragus, rt	2 weeks 2 days	Adenoids	Adenoids, excessively nervous; father epileptic		Adenoids	None		Earkit, politzer, boric acid ung. for furuncle, fowler's sol. zn sulph 1-6, later added bromide 1 gr	O m s ac improved furuncle cured
268	35	F	O m s c, both	3 months both	Exost sept	Rheumatic diath					Politzer catheter and K I	Not returned
269	16	F	O m s c, left attic recurrent	2 years 3 months		Attic	Yes, both	Exostosis, left	None		Syringe(dizzy) H_2O_2 politzer, boric acid	Improved
270	35	M	O m s sub-acut, rt recurrent	20 months 2 months	Defl sept exostosis		No	Defl sept. right exost lt hyp tur rt, nasopharyn	None		Strych 1:96, catheter menthol, ich, keral gargle	Improved
271	11	F	Cerumen impated, both	3 years rt		O m c c, both	Yes		Weber, watch voice		Cerumen removed, $H_2 O_2$, politzer	Cer cur'd omcc improved
272	26	M	Impact ceru, both	2 weeks rt		O m c c, both	No		None		Removed cerumen, boro-glyceride	Cer cur'd omcc improved
273	23	F	O m c c, both Same after 4 mos furuncle, right	1 year both	Bathing hyp rhin	Impact cerumen both	No	Hyp rhinitis pharyngitis	Watch None		Removal cerumen, sod. bicarb. politzer catheter menthol Tampon. camph. phen. $H_2 O_2$	Cer cured o m c c improved Cured
274	29	F	O m c c, bothe adhesiv right	1 year rt 1 week left		Calcar. plate rt Anæmia	Yes, both		Yes, all		Pill ferri pol. siegle, cath spray	Much improved
275	44	F	Impact cerumen, lt	6 weeks		Polyp	Yes		Yes,, all	Removal polyp	Removal cerumen, cocain rosorcin politzer	Cer cured

Table 4.

Case No.	Age	Sex	Diagnosis.	Duration.	Cause.	Complication.	Tinnitus.	Nose and Throat.	Tests.	Operation.	Treatment.	Result.

Table 4.

Case No.	Age.	Sex.	Diagnosis.	Duration.	Cause.	Complication.	Tinnitus.	Nose and Throat.	Tests.	Operation.	Treatment.	Result.
276	27	M	O m c c, both adhesive, left	4 years rt since child hood, left	"Grippe," chr. rhin		Yes, left	Chr. rhin. and pharyn exost sept right	None	Removal nasal spur; severe 2d hemor	Politzer catheter, spray, siegle	Improved
277	54	F	O m c c. right labyrinth disease lft	1 ye'r since childhood	Scarlet fever	Anæmia	No		Weber, watch voice, 3 forks		Syr ferri iodid	Not improved
278	36	F	O m c c adhesive, both	1 year both			No		Weber watch fork (C_2)		Politzer	Not returned
279	28	F	Acute tubal catarrh, both	3 weeks both	Acute pharyngit		Yes, both	Acute pharyn	None		Politzer	Not returned
280	30	F	O m c e, both left adherent	2 years both			Yes, both		None		Politzer, siegle	Much improved
281	23	E	O m c c, both adhesive left	1 year left	Defl of sept	Anæmic labyrinthine	Yes, left	Hyp inf. tur. rt sept. defl. left	Weber. watch voice, 3 forks		Pil. ferri., politzer cath. ment. spray, refer'd to nerve dep.	Improved
282	21	M	O m s c tuber. right	1 month	Tuberculo.	Tuberc. coxitis	Yes		None		Creosote	Not improved
283	30	M	O m c c, both	9 years both	Typhoid exost. sept.		Yes, left	Ulcer sept. rt exost sept post left	Yes. all		Polit, spray, siegel refer'd to nerve dep. for examination	Much improved
284	22	M	Impact ceru. both	1 week left		O m c sub-acute both	No	Sept. defl. left	None		Cer. removed, sod. bicarb, glyc. borat, polit., siegle	Cer. cured, o m c sub-ac improved
285	21	F	O m s c, left recur attacks for yrs	2 weeks	Chr. naso-pharyngit.		Yes	Tonsil hyp. follic, pharyng	Weber, watch voice, 3 forks		Earkit, polit. cath. alcohol	Improved
286	28	M	Polyp. canal, right impact ceru. left	3 days			No		Watch		Cerumen removed sod. bicarb	Cured
287	35	F	O m c c, both	1 year left	Defl. sept.		Yes, left	Defl. sept, left chr. fol. phary,	Weber. watch forks (C C_2)		Politzer, siegel, catheter. ichth-keral throat and nose	4 months much improved
288	67	M	O m s acute, right O m c c, left	4 weeks			Yes. right		Yes, all		Earkit, catheter	Cured
289	39	F	O m c c, both	1 year left	Atroph-rhinitis		Yes, left	Atroph. rhinit.	Weber, watch fork (C_2)		Siegel catheter menthol	Not returned
290	9M	F	Congenital deform. polyoia superfluous tagus, right	Life	Blow fr fall naso-phar	Calcareous deposits	Yes	Defl, sept. left naso-pharyng.	Weber. watch forks	Operation delayed	Siegle, polit. refer'd to throat dep	Not returned
291	27	M	O m c c, left	4 years								
292	37	F	O m c c, both	4 years	Defl. sept.		Yes, both	Defl. sept. left	Weber, watch forks (3)			Not returned
293	16	M	O m c acute attic, rt o m s c, left	1 week 3 years	Bathing naso-phar	Attic	Yes, right Yes, left	Naso-pharyng.	Weber, watch voice, 3 forks		Ear kit, cocain resor polit. dobell's garg.	Right cured left improved
			Same after 5 mons. recurrent, left			Granulations.	Yes (severe)				Polit- Ag. NO_3 to granulation tr. iod. catheter	Improved
294	32	M	O m c acute. both	3 weeks both		Syphilis (3)	No		Weber, watch voice, 3 forks		Polit.	Not returned
295	38	M	O m c acute attic left	2 weeks		Attic	No		None		Cocain resorc, later alcohol tampon, camph. phenique.	Cured
							No	Exost. sept. lft	Yes. all	Incision furun	Syringe hot water	Cured

293	16	M	O m c acute attic, rt o m s c, left	1 week 3 years	Bathing naso-phar	Attic	Yes, right Yes, left	Naso-pharyng.	Weber, watch voice, 3 forks			polit. dobell's garg.	left improved
			Same after 5 mons. recurrent, left			Granulations.	Yes (severe)					Polit- Ag. NO_3 to granulation tr. iod. catheter	Improved
[illegible]		M	O m c acute, both	[illegible]		Syphilis (3)	No		Weber, watch voice, 3 forks			Polit.	Not returned
295	38	M	O m c acute attic left	both 2 weeks		Attic	No		None			Cocain resorc, later alcohol tampon, camph. phenique.	Cured
296	20	M	Furuncle canal right	5 years	Scratching with pin		No	Exost. sept. lft follic pharyng.	Yes, all	Incision furuncle		Syringe hot water, packed iod. gauze; later, alco. camph. phenique cath. and deltsanche	Cured
			Same case, 2 weeks later, furuncle canal left	1 day					None	Romoval of exostosis sept. in throat dept.		Alco, camph. phen, boroglyce tampon ol morrh; alco. drops, syr. fer. iod.	Cured
297	71	F	O m c sub-acute, rt	4 months	Chr. atrop. rhinitis	Carious teeth *have been* remov.	Yes	Chr. atrophic rhinitis	None			Cocain resorcin-	Improved
298	19	F	O m s c attic. right recurrent	3 yrs; cur'd 1 year	Nasal obstructi'n	Attic	Yes	Exostosis sept *has been* remov	None			H_2O_2 cath. spray. Attic syringe; polit.	Improved
299	40	F	O m c c, both	2 mos right 2 days left	Exost. sept	Rheumatic hist.	Yes, both	Ecchon. left	Yes, all			H_2O_2, polit; fer iod. sod. salicyl; electricity recommended at home.	Improved
300	7	M	O m s c. left	6 years	Adenoids	Adenoids.		Adenoids hyp. tonsils	None	Removal adenoids and one tonsil		Polit.	Much improved
301	23	M	Furuncle canal. rt	1 week		Syphilis (2d)	Yes	Mucous patches	None			Earkit.	Cured
302	8	M	O m c e, both	1½ years	Scarlet fev. adenoids	Adenoids.		Adenoids hyp. tonsils	None	Removal adenoids and one tonsil; cautery		Polit. syr. fer. iod. dobell's spray.	Improved
303	38	F	O m c c, both	6 years left 1 week rt	Chr. naso-pharyng.		Yes, both	Chr. naso-phar catarrh	Yes, all				Not returned
304	25	F	O m c c, both	3 year both	Cystic middle turb.		Yes, both	Perforation in sept. cyst degenerate turb.	Yes, all			Polit. catheter delstanche	Improved
305	38	F	O m c c, both	2 mos both			Yes, both		Yes, all			Catheter siegle pilocarp. ext. fl. v.	Improved
306	5	M	O m s acute, left	10 days					None			Ear kit, politzer dil alcohol drops	Improved
307	21	M	O m s acute. left attic	1 week		Attic; mastoid pains	Yes		Watch			Ear kit tamp camph-phenique, politzer spray	Cured
308	44	F	O m s c, right o m s sub-acute, left	20 years 2 months	Defl. sept.	Polyp. left	Yes, both	Defl. sept. rt chr. pharyng.	Yes, all	Removal polyp		Cleansing H_2O_2, tr. iod. left, boric acid rt	Improved
309	64	M	[illegible]	[illegible]	Defl. sept.		Yes, both	Dev. sept. left	Watch			[illegible]	Lifter 3 days no

307	21	M	O m s acute. left attic	1 week		Attic; mastoid pains	Yes		Watch		Ear kit tamp camph-phenique, politzer spray	Cured
308	44	F	O m s c, right o m s sub-acute, left	20 years 2 months	Defl. sept.	Polyp. left	Yes, both	Defl. sept. rt chr. pharyng.	Yes, all	Removal polyp	Cleansing H_2O_2, tr. iod. left, boric acid rt	Improved
309	64	M	O m c c, both	2 years, both	Defl. sept.		Yes, both	Dev . sept. left	Watch		Catheter menthol, siegle K I for tinnit.	Vfter 2 days no improvement
310	12	F	O m s c, right o m s c healed left	Several years	Defl. Sept.		Yes, both	Slight deflect. sept. left	Yes, all		H_2O_2, politzer. boric acid insuf. alcohol drops.	Improved
311	29	F	O m s c, right o m c c. left	1½ years since child-hood	Scarlet fever	Cervical glands been removed	Yes, right no, left	Necrosis left turbin.	Yes, all		Cath. menth. siegle K I douglas spray. ichth. ker	Much improved
312	32	F	Mixed case. both	5 years rt 4 mos left		Anæmia emaci-ated; labyrinth	Yes, both		Yes, all		Cath. menth. siegle spray Pilocarp. syr. fer. iod hydrobromic acid	After 3 months improved
313	9	M	Otalgia						None		Transferred.	
314	24	M	O m s c, both	Not known rt; 2 mos lf			Yes. both		None		Earkit, politzer	Not returned
315	50	F	O m s acute, right attic	1 week	Removing wax with hairpin	Attic turberclar?	Yes		None		Alcohol; tamp. cam. phenique, politzer	Improved
316	12	M	O m c acute, left recurrent same case 2 w later o m c acute, right	1 week	Scarlet fe-ver 10 years before		No		None		Cleansed. politzer syr. ferri. iod. politzer	Improved
317	40	F	O m c c. both	10 years rt 5 years left	Obst. rhin.		Yes both	Hyp. turb. both Cyst mid. turb right	Yes, all		Catheter, siegle	Not returned
318	35	M	O m c acute, lt attic	5 days		Impact ceru.	Yes		None			Not returned
319	22	M	O m c c, right	3 months	Defl. sept.		Yes	Slight defl. sept. right	Weber, watch forks		Cath. siegle	
320	54	F	O m s c. left	10 years		Granulations cephalalgia	Yes		None		Earkit Ag NO_3; bor. acid; cath. politzer gelsemium K I	Improved; headache no better
321	14	F	O m s c. right o m s c adhesive, lt old cicatrix	Since child hood, both		Granulations	Yes		Weber, watch 2 forks (c_3 c_4)		Cleansed H_2O_2, Ag NO_3. politzer syr ferri iod.	Nor returned
322	24	F	Impact ceru. both	6 weeks, both		O m c acute	Yes		Weber, Watch voice, 3 forks		Removal ceru.	Ceru. cured o m c ac. imp'd
323	22	F	Impacted ceru. rt o m c c, old perfor. lt	2 weeks 3 years		O m c c, right some ceru left	Yes, right no. left		Weber. watch voice, 3 forks		Removed ceru. politzer	Ceru. cured not returned
324	35	M	Impacted ceru. both	3 weeks, both			Yes, both		None		Sod. bicarb removal ceru.	Cured
325	21	M	O m s c, both	Since child hood, both	Nasal pol chr. hyp. rhinitis	Some ceru, right	No	Chr. atroph. rhin. Polyp. rt	Watch, voice 3 forks($C\,C_2C_4$)		H_2O_2 alcohol politzer catheter	Cured after 2 months
326	3½	M	O m s acute, right	1 week				Chr. hyp. rhin. left	None		Earkit, politzer	Not returned
327	34	F	O m c c, left	8 months	Defl. sept.		Yes	Sept. slightly defl. ecchond. chr. pharyng.	Weber' watch 3 forks		Politzer and siegle sent to throat depart for treatment	Not returned
328	1	M	O m s acute, right O m s acute, left	6 months 1 day		Erysip. face, rt ulcer auric. left	No left		None		Cleansed camp phe-nique freely applied to canal, politzer zinc. oint; left earkit	Improved
329	8	F	[illegible] right	2 weeks	Carious	Carious teeth,	No	Adenoids,	None		Dentist removed teeth	Much improved

311	29	F	O m s c, right o m c c, left	1½ years since childhood	Scarlet fever	Cervical glands been removed	Yes, right no, left	Necrosis left turbin.	Yes, all			Cath. menth. siegle K I douglas spray. ichth. ker	Much improved
312	32	F	Mixed case, both	5 years rt 4 mos left		Anæmia emaciated; labyrinth	Yes, both		Yes, all			Cath. menth. siegle spray Pilocarp. syr. fer. iod hydrobromic acid	After 3 months improved
313	9	M	Otalgia						None			Transferred.	
314	24	M	O m s c, both	Not known rt; 2 mos lf			Yes, both		None			Earkit, politzer	Not returned
315	50	F	O m s acute, right attic	1 week	Removing wax with hairpin	Attic turberclar?	Yes		None			Alcohol; tamp. cam. phenique, politzer	Improved
316	12	M	O m c acute, left recurrent same case 2 w later o m c acute, right	1 week	Scarlet fever 10 years before		No		None			Cleansed, politzer syr. ferri. iod. politzer	Improved
317	40	F	O m c c, both	10 years rt 5 years left	Obst. rhin.		Yes both	Hyp. turb. both Cyst mid. turb right	Yes, all			Catheter, siegle	Not returned
318	35	M	O m c acute, lt attic	5 days		Impact ceru.	Yes		None				Not returned
319	22	M	O m c c, right	3 months	Defl. sept.		Yes	Slight defl. sept. right	Weber, watch forks			Cath. siegle	
320	54	F	O m s c, left	10 years		Granulations cephalalgia	Yes		None			Earkit $Ag NO_3$; bor. acid; cath. politzer gelsemium K I	Improved; headache no better
321	14	F	O m s c, right o m s c adhesive, lt old cicatrix	Since childhood, both		Granulations	Yes		Weber, watch 2 forks (c_2 c_4)			Cleansed H_2O_2, $Ag NO_3$, politzer syr ferri iod.	Nor returned
322	24	F	Impact ceru. both	6 weeks, both		O m c acute	Yes		Weber, Watch voice, 3 forks			Removal ceru.	Ceru. cured o m c ac. imp'd
323	22	F	Impacted ceru. rt o m c c, old perfor. lt	2 weeks 3 years		O m c c, right some ceru left	Yes, right no. left		Weber. watch voice, 3 forks			Removed ceru. politzer	Ceru. cured not returned
324	35	M	Impacted ceru. both	3 weeks, both			Yes, both		None			Sod. bicarb removal ceru.	Cured
325	21	M	O m s c, both	Since childhood, both	Nasal pol chr. hyp. rhinitis	Some ceru, right	No	Chr. atroph. rhin. Polyp. rt	Watch, voice 3 forks ($C C_2 C_4$)			H_2O_2 alcohol politzer catheter	Cured after 2 months
326	3½	M	O m s acute, right	1 week				Chr. hyp. rhin. left	None			Earkit, politzer	Not returned
327	34	F	O m c c, left	8 months	Defl. sept.		Yes	Sept. slightly defl. ecchond. chr. pharyng.	Weber' watch 3 forks			Politzer and siegle sent to throat depart for treatment	Not returned
328	1	M	O m s acute, right O m s acute, left	6 months 1 day		Erysip. face, rt ulcer auric. left	No left		None			Cleansed camp phenique freely applied to canal, politzer zinc. oint; left earkit	Improved
329	8	F	Otalgia. right	2 weeks	Carious teeth	Carious teeth, adenoids	No	Adenoids, hyp. tonsils	None			Dentist removed teeth	Much improved
330	40	M	O m s c cicatrix, rt o m s c cicatrix, lt	Since infancy, both	Hyp. rhin.		No	Chr. hyp. rhin.	Weber, watch			Siegle, politzer	Not returned
331	33	F	O m c acute, right	Developed 2 mos later					None			Cocain resor. syr. fer. iod.	O m c acute cured
			furuncle canal, left	2 days		O m s c, left 10 years attic	Yes		None	After 2 days incised furuncle		politzer camp. phen. (furuncle) cocain resor. for MT	furuncle cured o m s c cured

					teeth		adenoids		hyp. tonsils				improved
330	40	M	O m s c cicatrix, rt o m s c cicatrix. lt	Since infancy, both	Hyp. rhin.		No	Chr. hyp. rhin.	Weber, watch		Siegle, politzer	Not returned
331	33	F	O m c acute, right	Developed 2 mos later					None		Cocain resor.	O m c acute cured
			furuncle canal, left	2 days		O m s c, left 10 years attic	Yes		None	After 2 days incised furuncle	syr. fer. iod. politzer camp. phen. (furuncle) cocain resor. for MT	furuncle cured o m s c cured
332	34	M	Mixed case, both	6 mos left	Defl. Sept.		No	Defl. sept. left	None		Syr. fer. iod. politzer exam. by nerve dept	Slightly improved
333	45	F	O m c c, both	6 mos right 4 years lt	Defl. sept.		Yes, both	Cart. displaced left	Yes. all		Siegle, politzer cath.	Not improved
334	3	F	O m s acute, right	2 weeks	Sore throat				None		Politzer, ref'd to gen. med. clinic	Not returned
335	5	M	O m s c, both	3 yrs, both	Measles 2 years; ade.	Adenoids ceru.	No	Adenoids, hpy. tonsils, both	None	Advised oper.	Removed ceru. politzer	Not returned
336	8	F	O m c sub-acute, both	5 years	Adenoids	Adenoids ceru.	No	Adenoids	Watch	Removal adenoids	Removal ceru. politzer	Cured
337	32	F	Furuncle canal, rt	2 weeks			Yes		None	Incision	Camph. phenique tampon	Cured
338	44	M	Meniere's disease	2 years			Yes		Yes, all		Exam, nerve dept. K I politzer	Not improved
339	26	M	Furuncle canal, rt (discharging)	3 weeks	Use of finger		?		None		Camph. phenique tampon	Discharge and pain removed after 10 days; proba'ly cured
340	46	F	O m c c, both				?		None			Not returned
341	44	F	O m c c, both		Heredity ?		?		Weber, watch voice, 3 forks		Politzer, siegle catheter	Improved
342	29	F	O m c c, both	3 years		Petit mal.	Yes, both		Yes. all		Politzer cathe. K I gelsem	Improved
343	15	F	O m c sub-acute, both	2 years	Exostosis, left		?	Sept. Defl, left exostosis. right tonsils hyp	Weber, voice; 3 forks			Not returned
344	3	F	Cerumen, left	1 year			?		None		Syr. fer. iod. removal ceru. politz.	Cured
345	23	F	O m c sub-acute, rt O m s c, left	2 years wax rem'd			?		Weber, watch 3 forks		H_2O_2 politzer	Not returned
346	40	M	O m c c, both	2 weeks	Hyp. rhin	Cerumen, both	?	Hyp. rhinitis, both	Weber, watch		Politzer, siegle	Improved
347	11	M	O m s acute, right O m c c, left old perforatn	2 weeks	Adenoids	Adenoids	No	Nasal catarrh, hyp. tonsils, adenoids	Weber, watch voice, 3 forks		Syr. fer. iod. H_2O_2, politzer	Not returned
348	24	F	O m s c, right Impact cerumen, lt	4 years, rt	Syringing ear for deafness		Yes. right		Weber, watch 3 forks		Right politzer cathe left sod. bicarb, removal ceru.	Improved after 3 months ceru. cured
349	45	M	Furuncle canal (discharged) left	1 week			Yes		Watch		Syr. alcohol, tamp. camph. phenique	Cured
			same, 2 weeks later. furuncle in right	4 days					None		alcohol camph phenique	
350	7	M	Foreign body, paper, in canal, left	1 week					None		Removal mass of newspaper from canal	Cured

turn for further treatment; but it seems the more just plan to state the facts as they are. The following is the history form now being used in all the ear clinics at the Manhattan Eye and Ear Hospital:

HISTORY AND DIATHESIS.

R. L.

Duration.
Imp'd Hearing.
Tinnitus (kind).
Discharge.
Pain.
Paracusis.
Vertigo
Auricle.
Mastoid.
Canal.
M. T.
Valsalva.
Siegle.
Shrapnell.

Weber.

B. P.			A. P.			B. P.			A. P.	
					Watch					
					Acoumeter.					
Galton.					Voice.			Galton.		
					Rinné.					
					A. C. Schwabach. B. C.					
C	C_1	C_2	C_3	C_4	T. F.	C	C_1	C_2	C_3	C_4

Nose.
Naso-Phar.
Pharynx.
Tubes.

Diagnosis.
Prognosis.

Name_____ Address_____ Age_____ Occupation_____ Date____

Whole No. No.

The reverse of this sheet is left blank for notes upon the treatment, constitutional and special.

Much care has been given to the first examination of the patient, not only to get a good history of the case, but to ascertain cause, complications, etc.

Complete tests have been made in cases where it was deemed at all necessary, and partial tests in others. In many of the cases reported, the complete series of tests have been made at intervals of one month.

Much attention has been given to diseased nasal conditions, and an effort has been made to correct, so far as possible, these contributing causes.

It is interesting to note that patients who have impacted cerumen date their symptoms to a recent bath in salt or fresh water, having noticed no previous symptoms. This is no doubt due to the softening action of the water upon the masses of cerumen, resulting in the final closing of the canal, or pressure upon the membrana tympani.

A full report covering all the cases of mastoid diseases in this series has already been made in a paper entitled "Disease of the Mastoid—A Report of Seventeen Cases," and published in the Manhattan Eye and Ear Hospital Reports for 1896 (page 71).

Of the cases reported, the following is a classification of the diseases treated:

	Cases.
Otitis Externa Ac	45
O. M. C. Ac. (Attic)	22
O. M. C. Ac. (with diseased nasal conditions)	19
Mastoiditis	8
O. M. S. Ac	32
O. M. S. C	87
O. M. C. C	128
Otitis Interna	4
Mixed cases	17
Impacted Cerumen	80
Tinnitus (marked symptoms)	207
Otalgia	10

Of the 350 cases, there were:

Adults (over 14 years)	278
Children (under 14 years)	72

Of the 72 children, the exanthemata were given as causal as follows:

	Cases.
Measles	6
Scarlet fever	4
Small-pox	1

Lymphoid tissue in the vault of the pharynx was present and considered causal, in children, in 25 cases.

The records also show that a very large percentage of the entire series of 350 cases were complicated with some form of nasal disease, by 291, or 83¼.

Two cases, with rather unusual complications, are reported in full.

Case 342 possessed some features that seem worthy of mention. The diagnosis being O. M. C. C., complicated with petit mal.

L. S., aged 29 years; housewife. Came under treatment Dec. 3rd, 1895. She had gradually increasing deafness in the left ear for 3 years, and the right not so long. Had been treated in another institution in this city without improvement. The deafness was accompanied by distressing tinnitus, sometimes like "escaping steam," and at other times "like bells ringing." Had vertigo at times, and felt like falling forward. She is run down and anaemic. The right M. T. hazy and retracted, especially in post. quadrant. The left M. T. much retracted, hazy, light reflex gone.

Watch: R. 5/40. L 0/40. Voice: R. 8 ft. L. 1 ft.
Weber: L. Rinne: R. c 9/11. c^2 14/8. c^4 15/7.
" L. c 4/8. c^2 10/5. c^4 10/5.
Treatment: Potass iodid. gr. v, t. i. d. Catheter.

Dec. 19th. Has been ill with pulmonary inflammation—"nearly pneumonia," and is still very weak. Says she had a "dizzy faint" spell this morning, and since that time the tinnitus has been entirely relieved. Catheter and Siegle and the K. I. again. At this treatment the nerve symptoms seemed so marked that she was referred to the nerve department for both the electrical tests and for diagnosis.

Report of Dr. Terriburry:

"January 26th, 1896. Is very susceptible to head current; noise is heard with cathode closing in each ear, about 5 Mil. Amp. current. Examination deferred on account of vertigo. Jan. 30th. Whistling noise heard with cathode closing in right ear, 6 Mil. Amp. current; nothing heard with anode opening. Same result in left ear with same current." "Diagnosis is petit mal." Stopped K. I. and gave tr. gelsem. m. v, t. i. d.

March 1st. Tinnitus scarcely heard for 18 days, but there is a return, and is just as bad as ever; catheter and Delstanche.

March 19. Again some improvement since last treatment. Still has attacks of vertigo, but not so severe.

March 31. Gelsemium seems to be no longer effective and gave codeia gr. 1-10 every 4 hours. She has not since returned, and probably for the reason that there was no improvement.

Case No. 5. Acute inflammation of the atticus tympanicus; both sides complicated with acute empyema of the maxillary antrum, right side. F. B., 35 years, nurse. Complained of tinnitus and dullness, and same in left ear for several days. Pain on deglutition, shooting into right ear. Nose stopped up, and yellowish discharge from right side and into throat. There was severe inflammation in attic region of both membranae

tympani, much worse on right side, with very slight bulging. A solution made up of cocaine 4% and resorcin 8% was prescribed, with directions to put m. x. in each ear every four hours. Percussion over the right antrum elicited tenderness, and rhinoscopic examination revealed yellowish pus in region of the ostium maxillare, and translumination indicated a very dark area underneath the right eye, while there was a very bright area upon the left side.

The ear treatment was continued about one week, and all symptoms subsided. The only treatment for the antrum was to daily reduce the swelling in the region of the ostium maxillare with cocaine, and with a curved syringe canula inject warm 5% Borolyptol solution into the antrum, which was not difficult in this case. After injection, he was directed to lie down and hang his head downward, and the yellowish pus flowed freely. He recovered completely in a few days. An effort was made to determine the cause of these two acute conditions, and whether they in any way depended upon each other, or whether it was simply a coincidence; but no history giving any light upon it could be obtained.

In this clinic much attention is given to the general condition of patients, and a glance at the treatment will show that a large percentage of cases received the benefit of internal medication by means of tonics and general building up treatment, and through these means, the additional advantage of much more rapid amelioration of the special ear symptoms. The internal administration of ol. morrh. and iron has been found a most valuable adjunct in the cure of cases of O. M. S. C. in strumous, anaemic or otherwise unhealthy children. Too much stress cannot be laid upon this important feature in the treatment of ear diseases.

Attention has also been given to the condition of the teeth, and all cases of foul or decayed teeth have been referred to a dentist and otherwise instructed as to the importance of preserving the teeth.

I desire to acknowledge the valuable services of my first assistant, Dr. Frank T. Hopkins, in arranging the statistics for this paper.

ABSTRACTS FROM CURRENT OTOLOGICAL, RHINOLOGICAL AND LARYNGOLOGICAL LITERATURE.

I.—EAR.

Acute Hematoma of the External Auditory Canal.

ARSLAN, Y.—*(Archivio italiano di otologia, etc.)*

A man of 40, without pathological or hereditary history, in good health, experienced sudden, sharp pain in the left ear, with sensation of tension, serious diminution of hearing, general malaise, and a little fever.

Examination showed a bluish, fluctuating tumor, painful on pressure, located on the inferior wall of the canal and narrowing its caliber. Incision of the tumor evacuated a large quantity of blackish blood. The tumor was then found to have occupied the entire length of the canal. Recovery took place in a few days, with normal hearing.

The author supposes that a vascular anomaly of the region had previously existed, and a hemorrhage had been caused under the influence of vocal efforts. ALDERTON.

Cerebral Abscess After Acute Otitis Media.

BACON.—A Case of Acute Otitis Media, followed by an Abscess in the Temporo-Sphenoidal Lobe; Operation; Death from Shock; Autopsy. *(Archives of Otology*, Vol. XXV., No. 3.)

The patient, a man aged 25, had acute otitis media for the first time ten weeks before the operation was performed, and for three weeks had suffered from mastoid pain, severe headache, slight sensory aphasia, slow pulse, etc. Although brain abscess was suspected, a mastoid operation only was at first undertaken. The roof of the antrum and middle ear was examined for possible perforation, but none was found until the autopsy. Two weeks later, the symptoms pointing definitely to temporo-sphenoidal abscess, the skull was trephined 2.5 cm. above the external meatus, and after some difficulty the abscess cavity was found and emptied of half an ounce of pus. The operation, under ether, lasted an hour and a half. The patient died in half an hour, notwithstanding stimulation. Post-mortem: Two abscess cavities were found, a small one just above the tympanic roof, and the secondary larger one in the temporo-sphenoidal lobe. HARDIE.

On the Present State of the Various Tests for Hearing.

BEZOLD.—(*Archives of Otology*, Vol. XXV., No. 3.)

Distinguishing noises from tones long hindered the development of otology, because it gave rise to the idea of a separate region for the perception of noises outside the cochlea, in another portion of the labyrinth.

One of the best and most rapid tests of hearing is the human speech, but attention must be given to the values of the consonants as determined by Wolf: The deep R, V; middle B, K, T; high and strong S, SH, G; high and weak F. Bezold employs the words of numbers as test words, and equal intensity of sound can be obtained by using the residual air left after forced expiration, care being also taken to speak at the same *tempo*.

In certain definite forms of disease the same words are defectively perceived; *e. g.*, the low tones in "one hundred" are most perceived in affections of the conducting apparatus. Bezold has recently abandoned the use of the watch, audiometers and telephone. He does not agree with those who consider the tests for bone conduction as too complex. The idea that the test for B. C. in advanced years is useless is erroneous. B. C. does not, *per se*, diminish in old age.

The most satisfactory forks are the A and the A′, with the occasional use of the middle A. Both Weber's and Rinné's tests should be made with the A′ fork, which, after dying out on the mastoid, still vibrates for thirty seconds before a normal ear.

The series of clamped tuning-forks which Bezold now employs extends from A to C‴, ten forks. From C‴ to C‴‴ he uses organ pipes and a modified Galton whistle. Possessing a continuous tone-series, it is possible to demonstrate, in all cases of disturbance of the balance of the conducting apparatus, not only increased duration of B. C., but shortened perception of A. C. at the lower end of the scale. (The only exception to this is in acute exudative processes with secretion into the tympanum.) The following symptoms are characteristic of pathological alterations in the conducting apparatus: The loss of a district at the lower end of the scale of tones; the simultaneous elongation of B. C. for the lower tones; well-marked positive Rinné, with relatively good hearing, and a negative Rinné with greatly reduced hearing (provided that the other ear is not quite normal). Each of these is affirmative, pro-

vided that we can exclude deception on the part of the patient. All that we test in these experiments is always the same; the directly antagonistic relation between A. C. and B. C., which shows itself all the more closely the lower we go in the scale of tones.

In studying diseases of the inner ear, too great stress has been laid on the exclusive loss of *high tones*. Examinations of deaf mutes with a continuous series of tones shows a small definite zone in the scale, the loss of which is followed by deafness for the voice.

Relative and absolute deafness are easily discovered, when bilateral; but unilateral deafness is difficult to establish, because A. C. at its lower and upper limits is so different. Total unilateral deafness may be established by the continuous series of tones for the lower five octaves, but for the highest tones we must take the average obtained in a long series of patients, the good ear being hermetically closed. HARDIE.

On General Pyaemic Infections Following Aural Suppuration.

BRIEGER.—(*Archives of Otology*, Vol. XXV., No. 4.)

1. Pyæmia Without Sinus-Phlebitis. The symptom-complex of pyæmia may be associated with aural suppuration without the agency of a sinus-thrombosis. In addition to that caused by an osteo-phlebitis, a rare form of septico-pyæmic infection has been described by A. Fraenkel, and designated a dermato-myositis, which is distinguished by the absence of actual suppuration in the affected muscles. Another form of otogenous pyæmia is that developed from an osteo-phlebitis. This form was first described by Koerner, and more recently by Hessler. It differs from that due to sinus-thrombosis, in the greater benignity of the entire disease picture. Brieger inclines to the belief that the operative opening of the mastoid, in the absence of marked local indications, is not advisable.

2. Thrombo-Phlebitis of the Lateral Sinus. But little advance has been made in its diagnosis within the past five years. The characteristic pyæmic temperature curve is, of course, important; but confusion is possible with typhoid, malaria, and tuberculosis, when there is co-existing aural suppuration.

Fundus changes, while important, are not specifically peculiar to this disease, and the local symptoms which stand in relation to the emissaries, such as the œdema and

infiltration at the posterior border of the mastoid process in the occipital and cervical regions are observed in many forms of mastoid suppuration, notably in the so-called Bezold mastoiditis.

Much may be learned from inspection of the exposed sinus wall, especially if gangrenous spots can be demonstrated; but attempts to judge of the condition from discolorations, changing resistance of the wall, or direct palpation of the thrombus, frequently lead to erroneous conclusions. No particular weight should be attached to the absence of respiratory movements, or to the presence of pulsatory movements,

As between puncture with aspiration and incision for purposes of exploration, Brieger, as a rule, first employs puncture, concluding, if necessary, by incision. He recognizes the fact, nevertheless, that the aspiration of fluid blood from the sinus does not exclude the presence of a thrombus, the remains of which may still cling to the sinus walls.

The prognosis, while much more favorable than formerly, depends essentially upon the stage in which treatment is undertaken. The radical cure of the primary middle-ear disease is necessary to the persistance of a cure of sinus-phlebitis. While chiselling of the mastoid may cause deafness, or by detaching loosening thrombi cause their entrance into the circulation, no better method, up to the present time, can be substituted.

Brieger's experience substantiates Bergmann's statement that thrombosis of the lateral sinus is freed from its dangerous character by removal of the pus in contact with its walls. The course to be taken in simple thrombosis, after opening the sinus, when purulent softening is not apparent at the point of incision, is still undecided. After a full discussion of the subject the writer agrees with Schwartze, Jansen and Macewen, that "the systematic application of ligation of the jugular as in integral part of the operative therapy of sinus-phlebitis is not justified; it is an error in pyæmia without sinus-phlebitis." A proviso for its application is the positive demonstration of sinus-thrombosis by examination of the contents of the sinus. In the presence of a solid occlusion in the direction of the jugular vein, if evidence is wanting for the assumption of the extension of the thrombosis into the vein, ligature is superfluous, and, under certain circumstances, in-

jurious. In addition, dependence on the general condition after the sinus has been opened as a guide for ligation of the jugular, as Jansen proposes, is questionable.

The principal point, in my opinion, in deciding as to whether or no the vein should be ligated, is dependent upon the local findings in the vein itself, or at least at the central end of the thrombus.

The sole contra-indication, with regard to operation, is purulent lepto-meningitis, the presence of which may be demonstrated by spinal puncture.

3. Thrombosis of the Cavernous Sinus. Participation of this sinus in a thrombosis spreading from the lateral sinus by way of the petrosal, is by far more frequent than disease confined exclusively to one or both cavernous sinuses. The classical symptoms are exophthalmus, paralysis of the ocular muscles, immobility of the globe, œdema of the lids, and chemosis of the conjunctiva. Paralysis of the ocular muscles is probably caused by the complicating meningitis. Changes in the background of the eye may be wanting, although symptoms of stasis, if not of choked disc, were observed in Brieger's three cases. In two of his cases incision of the lateral sinus was followed by a considerable diminution of the symptoms of stasis in the area of the ophthalmic vein, œdema of the lids and chemosis, and protrusion of the globe, and Brieger suggests incision of the lateral sinus for diagnostic purposes, although he does not consider it impossible that coagula loosely adherent to the walls of the cavernous sinus may be torn away by the force of the hemorrhage and gain access to the lateral sinus by way of the superior petrosal. One of his patients, who presented all of the symptoms of thrombosis of the cavernous sinus, recovered after incision of the exposed lateral sinus, but the prognosis is, as a rule, very unfavorable, and operative treatment directed to the sinus itself has been followed by successes only in Bircher's case, reported in *Wiener Naturforscherversamml.*, 1894. HARDIE.

Mastoid Fistula Cured by Trephining the Apophysis and the Tympanum.

BROCA, A.—*(Gaz. hebd. de med. et de chir.)*

Complete success obtained by Broca, in a child of 13, having a mastoid fistula. An old otorrhœa dated from the fourth year. At 6, a retro-auricular abscess was incised and healed rapidly. At 12, a new abscess, newly

incised, left a fistula. After several months, the otorrhœa became very profuse; two fistulous openings were established behind the auricle, the pain became very severe, the child became so pale and emaciated that a tuberculous lesion was suspected.

Broca then opened the antrum largely, as well as the aditus and the tympanum. Under the cutaneous fistulæ existed a perforation of the cortex at the level of the antrum, there being no trace of the ossicles in the tympanum. All the cavities were filled with a fœtid cholesteatomatous mass. Seven months afterward the child was cured; the local condition was perfect, the general condition excellent. Broca insists on the length of treatment, and the integrity of the facial that he was able to preserve.

ALDERTON.

Chronic Tympanic Vertigo.

BURNETT.—Chronic Tympanic Vertigo; Its Relief by Surgical Removal of the Incus. (*American Journal of Medical Sciences*, October, 1896.)

The author had previously reported (*International Clinics*, January, 1892,) ten cases of chronic catarrhal deafness, tinnitus aurium and vertigo treated by excision of the drumhead and the two larger ossicles, with the following results: Deafness relieved in 4 cases, not relieved in 6; tinnitus greatly relieved in 3, somewhat relieved in 5, not relieved in 2; vertigo not present in 2, greatly relieved in 5, slightly relieved in 2. He has now substituted for the former operation a simple incision of the drumhead and removal of the incus, which liberates the stapes most completely, and is never followed by reaction of any moment. In this paper he presents notes of 16 additional unselected consecutive cases, in which the vertigo was the prominent symptom. All of the operations were performed upon the etherized patient under illumination by means of a six-volt electric forehead lamp. The vertigo was relieved at once in 10 cases, was relieved gradually in 4 cases, was unchanged in 2 cases; the tinnitus was lessened in 13 cases and was unchanged in 3 cases; the hearing was improved in 9 cases, was unchanged in 7 cases. HARDIE.

The "Mastoid" Antrum a Part of the Middle Ear.

CHEATLE.—(*Archives of Otology*, Vol. XXV., No. 3.)

Cheatle prefers the name "tympanic" antrum because in fœtal life it is a definite and regular part of the middle ear. In the petro-mastoid portion of a fœtal temporal

bone, a recess is seen behind the incus, continuous with the inner tympanic wall, smooth and slightly overhung by the posterior part of the tegmen tympani. This recess is the inner wall of the antrum, and is converted into a cavity by the juxtaposition of the tegmen to the posterior part of the outer plate of the horizontal portion of the squama; this outer antral wall, smooth at six months, becoming cellular at about eight months. HARDIE.

Prognosis of Insanity Complicated by Hæmatoma Aurium.

CLARK.—Prognosis of Insanity Complicated by Hæmatoma Aurum. *American Medico-Surgical Journal*, August 22, 1896.

The consensus of opinion among authorities is that the prognosis is very grave, although cases in which recovery has taken place have been reported. Clark reports one case among the 7,000 admissions to the Connecticut Hospital for the Insane, who recovered after developing hæmatoma aurium. The patient, a sailor, aged 24, had suffered from acute melancholia for about a week prior to admission. One week later a non-traumatic left hæmatoma auris developed. He gradually recovered from the melancholia, and was well five years after the attack.

HARDIE.

A Case of Peri-Petrous Suppuration.

CLAYTON.—A Case of Peri-Petrous Suppuration. *Birmingham Medical Review*, August, 1896.

Patient, aged 12, had suffered from purulent discharge from left ear from infancy. Headache five weeks, rigors two weeks, unconscious for two days, right hemiplegia, pulse 120, respiration 40, temperature 104.6. Mastoid antrum opened; nothing abnormal found; left rolandic area exposed through a second opening. Dura mater bulged, and several drachms were removed by the exploring needle with temporary amelioration of symptoms. Three days later high temperature and pulse, and semi-comatose condition had returned, and temporo-sphenoidal region was trephined and an exploring needle passed in several directions; no pus. Two days later, proptosis of both eyes; a week later, thick fetid pus was evacuated from the region of the left upper eyelid and external angular process, but the patient became syncopal and died in six hours. *Post-mortem:* Inner surface of dura mater nearly normal, except at bend of left lateral sinus and at apex of left middle fossa. No pus within dura. Small abscess in apex of left lower temporal convolution. Left mastoid

antrum contained much yellow inflammatory material, which also plugged the left lateral sinus. The same material covered both anterior and posterior surfaces of the petrous bone, and had entered the orbit through the sphenoidal fissure. HARDIE.

Experimental and Clinical Investigations of Surgical Treatment of Certain Forms of Deafness.

GARNAULT.—Experimental and Clinical Investigations of Surgical Treatment of Certain Forms of Deafness. *Bulletins de la soc. de biologie.*

From experiments made upon the auditory organs of some animals, G. tries to show, in support of his ideas as to the cure of chronic deafness, the preponderating role of the stapes in the transmission of sound-waves. It is difficult, he says, to reach the region of the stapes by the natural passages without implicating the canal in that part nearest to the tympanum; this region and that of the oval window being, if the examinations of the numerous skulls in the Paris laboratories are to be relied upon, absolutely invisible, and consequently unattackable to the naked eye. Garnault claims that removal of the stapes and penetration into the vestibule may be entirely harmless in some animals and in man, and may have no influence upon the sense of hearing. He affirms that some patients operated upon by him for mobilization of the stapes, after his method, have obtained appreciable results, even after several months of observation, and he brings to the support of his affirmation two cases, one affected with chronic sclerosis and the other with a very old chronic purulent otitis. These cases presented an improvement which rather increased than diminised. The patients heard clearly at 15-20 meters the ordinary speaking voice.

ALDERTON.

A Typical Case of Meniere's Disease.

GEVAERT.—A Typical Case of Meniérè's Disease. *Soc. belge d' otologie, etc.*

Cases of true Meniérè's disease, characterized by sudden deafness, vertigo and tinnitus in the ears, are excessively rare. This man, night watchman in a factory, fell upon the stairs and was unable to pick himself up, each attempt being accompanied by vomiting. During several weeks he was taken with vertigo upon opening the eyes, remaining absolutely deaf and a prey to intolerable tinnitus. After several months the condition was modified, but deafness persisted.

Second case.—A naval captain 32 years old, was taken one night suddenly with tinnitus, and fell upon the floor. He was lifted as though unconscious, but was taken with vomiting when upright, and was found to have become deaf, the vertigo and tinnitus continuing. The vomiting disappeared after several days. The tuning-fork was not perceived on the affected (right) side. Mt. and tympanum healthy. Treated with pilocarpine the patient improved in five weeks, being able to walk with a cane. His writing, which had become like that of an old man, was again as before the attack. ALDERTON.

On Closing Perforations of the Drum-Membrane.

GOMPERZ, B. (Vienna)—On Closing Perforations of the Drum-Membrane. *Wien. Klin. Woch. No. 38, 84.* Sept. 17, 1896.

It has been held by the majority of otologists that perforations cannot be permanently closed by the means hitherto recommended. Okuneff (Monatsschr. f. Ohrenheilk. 1895), however, claims to have been successful in half of his cases by persistently cauterizing the margins with trichloracetic acid in intervals of at least a week. It took a long time in some of his cases for the scar to form. One case required 27 cauterizations within eight months; one, 20 within six months; another, cauterizations for ten months at intervals of one to two weeks. In children his results were the best. G. is encouraged, by his experience, to draw attention to this treatment. He selected only such cases in which hearing was not impaired by closing the perforation temporarily. A 10 per cent. solution of cocain diminishes the pain of treatment. After cleaning the ear, the margins are carefully painted with a cotton-tipped probe dipped in the deliquesced acid If there is severe pain—which rarely lasts more than ten minutes—the ear must be syringed. After cauterization, the margins of the perforations, as well as the parts of the tympanic cavity which may have been touched, appear snow-white. The reaction is remarkably slight, considering the energy of the method. Suppuration set in but rarely; usually the membrane showed but little change the next day. If suppuration did occur it was of an especially benign character. and ceased after a few irrigations and boric acid insufflations. The results in his ten patients were as follows: In 4 cases the perforation closed completely; in 1 case, after two cauterizations within one month; in 1 after five cauterizations within

four weeks; in 1, after six cauterizations within ten weeks. In the first four cases there formed, in the place of the perforation, a thick, grayish membrane which could not be distinguished from the rest of the drum-head. It would have been impossible to diagnose a cicatrix without knowledge of a history of the case. This confirms a former statement of the author, that it is not true that the intermediary layer does not participate in the formation of scars of the drum-head. In the other six cases the perforation became distinctly smaller. The lack of a complete recovery is due, probably, to the short duration of the treatment. In two cases the defect was reduced to pin-head size.

MORGENTHAU.

Subjective Sensations of Sound.

GOWERS.—Subjective Sensations of Sound. *British Medical Journal*, Nov. 14, 1896.

A sufficiently full abstract of Dr. Gowers' lecture can hardly be given in this place, and it is mentioned here merely to direct attention to what is an important discussion of the subject from the neurologists' point of view. Among the subjects noticed are the distinctions between visual and auditory sensations, the chief features and varieties of tinnitus, the localization of central sounds, the features of labyrinthine sounds, the relation of tinnitus to external sounds, hyperacusis, the relation of tinnitus and vertigo, sounds of central origin, and particularly their manifestation in epileptics. The labyrinthine pathology which underlies their symptoms, primary atrophy of the auditory nerve, and the functional state of the nerve endings, are also discussed. The paragraph entitled "Some Principles of Treatment," is brief, and rather more despondent in tone than necessary.

HARDIE.

Treatment of Otorrhea from the Special Point of View of Endocranial Complications.

GRADENIGO.—Treatment of Otorrhea from the Special Point of View of Endocranial Complications. *Boll. del Policlinico, etc.*

Certain cases of O. M. P. C. recover easily, while others resist all medication. As to surgical intervention, otologists are divided into two classes; one set finds in operation the sole means of obtaining a cure in the majority of cases; the other, on the contrary, considers that operative interference should only be undertaken when the failure of other means is incontestable.

Thus, Michael advises against surgical treatment, and Gradenigo's article is mainly an answer to his objections.

Why operate? To avoid or cure grave, often mortal, complications. However, Michael had only 7 deaths in 2,000 cases of O. M. P. C., being 35 per cent. Gradenigo observes that it is difficult, in a clinic, to obtain an exact idea from statistics. While there are no complications, the patients come regularly; in the contrary case, they go either to the hospital or to a physician, according to their circumstances. Moreover, in the hospital these patients are differently assorted. Thus the percentage of mortality given by the different authors varies. Schwartze gives 5 per cent., Bezold 2 per cent., and Barker 21½ per cent. This number becomes higher if we consider only the grave cases, and Gradenigo has found in this case a mortality of 8 per cent.

On the other side, Michael observes that Weil, in examining thousands of children, found 5 per cent. affected with otorrhea, which gives Germany 36,000 cases of otorrhea. Another argument consists in saying that the operations in themselves are dangerous, and statistics give an appreciable number of fatal terminations; that, moreover, antiseptic methods are not completely applicable to tho ear.

This last objection is more than debatable, especially when large operations are concerned.

Rational treatment through the canal should first be tried for a sufficient length of time, and operation only proposed if no results are obtained after several months,

ALDERTON.

Deaf-Mutism of Probable Syphilitic Origin.

GRANCHER.—*(Journ. de med. et de chir. pratiques.)*

A child of 5, of normal intelligence and development, is affected with deafness proceeding from no apparent aural cause; soon the child becomes sparing in the use of words, expressing himself by gestures. After two years the deafness became complete, and mutism followed in several months. At the same time the intelligence and memory became weakened, the character becoming irritable. G. attributes this deafness to atrophy of the auditory nerves, comparable to certain atrophies of the optic nerve. These auditory atrophies, rare, it is true, should be noticed ni hereditary syphilis, ALDERTON.

A Contribution to the Otogenous Cerebral Abscess.

GRUNERT, C. (Halle)—A Contribution to the Otogenous Cerebral Abscess. *Berl. Klin. Woch. No. 52*, Dec. 28, 1896.

Only a decade has passed since the first otogenous cerebral abscess was operated upon successfully, and the statistics comprise over one hundred favorable results. It must not, however, be denied that the chances in these cases are much smaller than in the operative evacuation of otogenous epidural abscess, for instance—not because an operation on the brain is so exceedingly dangerous, or demanded the technique so eminently difficult, but on account of certain accidental conditions which may accompany the disease. Firstly, otogenous cerebral abscesses are not infrequently multiple (20 per cent.); and, secondly, a timely diagnosis may be very difficult. In literature we find a number of abscesses which remained latent during life. The abscesses were a post-mortem discovery. In other cases the symptoms were so meager and so transient that an operation did not seem justified. In still others, the surgeon was consulted when it was too late to save the patient's life by an operation; the abscess having already made its way to the surface of the brain and produced a diffuse purulent meningitis, or having brought on the stage of final convulsions by breaking into the lateral ventricles. And its diagnosis may become impossible when the abscess is complicated by other intracranial affections (meningitis, sinus thrombosis, epidural abscess), as is so often the case.

In the author's case the gradual development of the otogenous cerebral abscess could be watched until the diagnosis was made nearly with positive certainty, and then confirmed by the operation.

E. S., 23 years of age; clerk.

History.—Patient came to the Schwartze clinic on account of a right-sided middle ear suppuration, which he states has lasted a few weeks, but which appears chronic. Complains of slight pains in the ear.

Condition.—II. 24, 96. Without fever, well built, heart healthy; lungs suspicious (mother died of tuberculosis); shortening of left leg (healed hip-joint disease); urine free from albumin and sugar: right mastoid region moderately swollen, reddened, and edematous sensitive to pressure; old scar, about a finger's breadth in size, behind mastoid process; right auditory canal is narrowed to such an extent that the drum-membrane cannot be seen; in its depth a small granulation. Left auditory canal and drum-membrane are normal; functional examination. Whispering: Right, 20 cm.; left, 5 m.

c., to the right from vortex. Rinne, right. High notes perceived normally on the left. On catheterizing, uncertain ausculation sounds on right side. As previous treatment had been of no avail, and the temperature began to rise, the ear was operated upon, as follows: Soft parts, edematous; cortex of mastoid, normal. As the antrum could not be reached in the typical manner after going down $2^1/_2$ cm, the middle ear cavities were opened up with the guide of a probe pushed into the antrum through the aditus ad antrum (Stacke's method). They are all filled with disintegrated cholesteatomatous masses. Only a remnant of the anvil is left, covered by granulations; the hammer is missing. The cutaneous posterior wall of the auditory canal was slit, and the flaps thus formed stitched to the upper and lower angle of the wound. No fistula leading to the cranial cavity could be found.

II. 25. Evening temperature 37.9; condition, fairly good.

II. 26. Complains of headache, which radiates from the ear operated upon. Temperature 38.5 in the evening; rectal injection.

II. 27. Headache persists; temperature 38.5.

II. 28. Temperature 38.2.

II. 29. Pain more intense, spreads over whole head; persistent constipation; injection; temperature 38.9. First change of dressing; pus in lower angle of wound.

III. 1. Slight headache; obstinate constipation; temperature 38.2.

III. 2. Second change of dressing. Retention of pus in lower angle; no fever, but persistent headache.

III. 3. No fever; headache; constipation: anorexia; injection.

III. 9. No change; wound looks well; constipation; no fever.

III. 10. Headache intolerable in the evening; anorexia; *slowing of pulse* (60); morphine hypod.

III. 11. Patient has the appearance of a sufferer; has lost thirteen pounds since II. 24; lips crusted; anorexia; severe headache; no fever.

III. 12. Pulse 60; temperature normal: anorexia; constipation; right temporal region sensitive to percussion; no disturbances of sensibility or mobility; diffuse headache.

III. 15. Temperature normal; pulse 44; constipation, injection and cascara sagrada; hiccough for two hours in the night; headache has nearly entirely disappeared.

III. 18. Temperature normal; pulse 66-72; hardly any headache; constipation; more appetite; sufficient sleep; hiccough for two hours.

III. 20. Temperature and pulse normal; headache; passage after injection; pain in right parietal tuberosity on percussion.

III. 23. Slowing of pulse continues; most obstinate constipation; tapeworm discovered and expelled; headache less; no appetite; very feeble.

III. 27. Involuntary urinating during night; some stupor; does not complain of headache; free from fever; forgetful.

III. 28. Slightly stupid; answers slowly; does not hear some questions; grows tired easily; no disturbance of speech; pupils, of middle size, react sluggishly; hemiparesis sinistra is most pronounced in arm, less distinct in leg, just visible in lower branch of facial nerve; hypesthesia on the left side, also of cornea; reflex

irritability is greater on left than on right side; foot clonus on both sides; pulse 54; respiration 12.

III. 29. *Trephining for right temporal lobe;* dura mater exposed about the size of a dollar from the squamous portion of the temporal bone. It feels abnormally resistent. Dura mater is incised horizontally, and the edges are separated. A broad scalpel is introduced into the brain. At the depth of $1^1/_2$ cm. a membrane offering more resistance (abscess membrane) seems to be pierced. Immediately about 30 ccm. of fetid pus well up. Dilatation with dressing forceps. The abscess cavity accommodates $1^1/_2$ phalanges of the index finger. Drainage dressing. In the abscess pus pure cultures of streptococcus are demonstrated bacteriologically.

III. 30. Change of dressing; considerable suppuration; general condition good; constipation.

IV. 2. Daily change of dressing.

IV. 5. Less secretion from natural passage.

IV. 8. Drainage tube removed. Wound in ear is being covered with epidermis. Hemi-paresis and hemi-anæsthesia have disappeared entirely.

V. 9. Trephine opening is closed; ear dry for three days. Patient discharged.

XI. 15. Patient presented himself every six weeks; ear always dry; general condition always good. Present status: Wound in bone perfectly dry and covered with shiny, delicate epidermis; nowhere suspicious crusts. Behind the ear a small postauricular opening in the margins covered with skin. Corresponding to the trephine opening in the squamous portion of the temporal bone an osseous defect about the size of the end of a finger can be felt, and through it the pulsation of the brain. Whispering heard only indistinctly on right side. C. to the right from the vertex. Pulse 80. Dynamometer: right, 165; left. 140. Only complains of headache when room is overheated.

REMARKS.—The absence of fever or the subnormal temperature did not speak against the diagnosis of epidural or cerebral abscess. These complications are usually not accompanied by fever after the initial stage. Aside from the persistent, and sometimes intolerable, headache, n intracranial affection seemed probable on account of the change in the patient's physical condition (moodiness, irritability, forgetfulness); in addition, there was most obstinate constipation, loss of appetite and weight, and lastly, slowing of the pulse to 44. It was, however, impossible to locate the brain affection; the operation on the ear did not furnish any hint as to whether the abscess was in the temporal lobe or in the cerebellum. Otogenous abscesses are more frequently situated in the former than in the latter. Furthermore, cerebellar abscess is accompanied by occipital headache and attacks of vomiting. Schwartze does not attach as much importance as others

to sensitiveness on percussion as a localizing symptom. But the diagnosis seemed certain when, finally, distinct hemi-paresis and hemi-anæsthesia appeared on the other (right) side; they being explained as an indirect focal symptom, caused by the influences of the abscess on the posterior arm of the internal capsule, which is traversed by the motor and sensory tracts.

Not only the abscess was cured, but also its cause, the chronic middle-ear suppuration. As this was a case of cholesteatoma, the time of observation (7½ months) does not appear sufficient to the author to exclude a return of the suppuration. He insists on the importance of a radical cure of the ear, in order to avoid a second intracranial complication. MORGENTHAU.

Syphilitic Affections of the Ear.

HABERMANN.—Syphilitic Affections of the Ear. *Klin. Vort. a. d. Geb. d. Otol. Pharm.*

Of 116 cases of syphilis of the ear observed by the author, only three involved the external ear; 38 the middle ear alone, or mainly, often with participation of the labyrinth; 66 cases presented lesions of the internal ear, either exclusively or dominantly. The author's observations add nothing new to the diagnosis or to pathological anatomy. As to hereditary syphilis, the author has found only 13 cases of otitis of this origin in 6000 affections of the ear, a number to be noted by the side of Hutchinson's, who gives 10 per cent. of hereditary syphilitics as deaf.

ALDERTON.

I Hysterical Dysbasia with Hysterical Otalgia. 2. Alterations of the Osseous Canal in Deformed Crania.

HARTMANN.—1. Hysterical Dysbasia with Hysterical Otalgia. 2. Alteration of the Osseous Canal in Deformed Crania. *Congress of German Otologists.*

A boy of 11 with O. M. A.; treated by paracentesis, rapidly cured; six months later, violent pain near the mastoid process; trephinement showed the process to be absolutely normal, but nevertheless caused the pain to cease, and the child was well up to the age of 13. One day he was taken with fever suddenly, lasting two days, and with mastoidal pains irradiating into the head; several days later he could not walk. Some accident in the ear was suspected, but a new paracentesis showed nothing and the child again returned to the author, who established with Prof. Oppenheim the diagnosis of abasia-astasia, and

otalgia of hysterical nature; indeed, several applications of electricity led to complete cure.

2. The author presented several specimens of skulls of the natives of Peru, artificially flattened. The auditory canal (external) is flattened, the tympanic osseous walls present perforations in varying numbers, being sometimes like a sieve. The malformations are often symmetrical, showing that they are not at all congenital. ALDERTON.

On Aural and Nasal Hemorrhages in Bright's Disease.

HAUG (Munich).—On Aural and Nasal Hemorrhages in Bright's Disease. *Deutsche Med. Woch., No. 45*, Nov. 5, 1896.

Dieulafoy states that disturbances of hearing, subjective noises, inflammation of the middle-ear, more rarely complete deafness, are much more frequent in the course of Bright's disease than disturbances of vision. Dieulafoy and Pissot found, among 66 cases of chronic nephritis, 34 with impairment of hearing due solely to the kidney trouble; and Pissot independently ascribed in 18 cases (out of 37 cases of chronic nephritics) the anomalies of the ear to the kidney disease. Binkner, furthermore, traced, of 150 cases of acute inflammations of the ear, to chronic nephritis. Hedinger observed repeated exudative processes in the middle-ear, with and without mastoid abscess, in such cases; and Kirchner speaks of the relative frequency of hemorrhage within the ear. In view of the rather meagre literature of the subject, the author relates an interesting history.

A. E., 39 years of age, corpulent, habitual beer drinker. For $1\frac{1}{2}$ years heart symptoms (weakness with arythmia). About $\frac{3}{4}$ year ago his nose began to bleed profusely and spontaneously so that tamponing became necessary. Urine was then free from albumin. In the middle of March, '96, profuse nasal hemorrhage set in again with greater intensity so that ergotin and fluid extract of hydrastis had to be administered. Anterior tampons had to be kept in for a full week. In addition to the cardiac symptoms the liver was found to be considerably enlarged, and the urine to contain albumen. Microscopically, marked nephritis was diagnosticated, not only transient irritation. No ascites or edema. A *short time before* the nose began to bleed, Pat. suddenly complained of severe pains in both ears. These were accompanied by loud subjective noises and great acute diminution of hearing, especially on the right side. The right drum-membrane

shows severe inflammation and deep dark blue discoloration. The left drum-membrane is only slightly reddened. In the anterior part there are two very small blood-blisters; the rest of the membrane is spotted by quite small ecchymoses.

Ophthalmoscopically it was found that there was albuminuric retinitis on both sides, with copious fresh retinal hemorrhages. Within **3** weeks, the hemorrhagic secretion in the drum-cavities was absorbed without the formation of pus. It had not become necessary, to be sure, to perform paracentesis as the pain ceased. The author is able to exclude all other causes for these hemorrhages in nose, ear and eyes, and to ascribe them solely to the nephritis. They were the first signs which pointed to the disease. Hemorrhages in the course of Bright's disease occur in various organs, retina, dura mater, brain, intestinal tract. They are not the result of grosser lesions of the vascular walls, but the blood escapes per diapedesin.

Analogous to them are, therefore, as autopsies have revealed: ecchymoses of the drum-membrane, bloody suffusions of the mucous membrane of the middle-ear, labryinthine hemorrhages, and hemorrhagic transudations of the drum-cavity. It is proper to speak of a tympanitis and myringitis albuminuria. MORGENTHAU.

Case of Bezold's Mastoiditis.

HAGETSCHWEILER.—Case of Bezold's Mastoiditis, with Pyæmic Complications. *Soc. oto-lar. Suisse.*

About four weeks after the appearence of an acute otitis media, metastases of the left shoulder and of the left lumbar region also appeared. While the inflammation of the shoulder disappeared spontaneously, there developed in the lumbar muscles an abscess in which, after opening, H. found the same microbes (isolated diplococcus, resembling streptococcus) as in the pus of the ear.

Following this lumbar abscess, which began to extend into the pelvic cavity, the temperature rose and a phlebitic thrombosis of the left shoulder supervened. After the disappearance of these complications, there was produced an infiltration of the inferior mastoid region as large as the hand, which slowly invaded the thyrod cartilage up to the median line (Bezold's Mastoiditis). After opening of the abscess, the otorrhœa ceased definitely; but a mastoid fistula persisted, *as the passage had not been cleared of all necrotic substances by curetting.*

This case proves the immediate necessity of a mastoid operation so soon as the signs indicate pyæmic otitis media, with or without metastases. ALDERTON.

Acute Suppuration of the Middle Ear.

JACK.—Acute Suppuration of the Middle Ear, Followed by Caries of the Fallopian Canal and Facial Paralysis. No Involvement of Mastoid Cells. *Boston Medical and Surgical Journal.* December 24, 1896.

Complete right facial paralysis developed at the end of the fifth week of an acute otitis. The outer mastoid cells were normal and pus was found only after very deep chiseling. The facial paralysis later disappeared.

HARDIE.

Oto-Massage.

JACKSON, CHEVALIER.—Oto-Massage. *The Laryngoscope*, Jan., 1887.

Dr. Chevalier Jackson, of Pittsburgh, Pa., states that direct pressure with probes for oto-massage, whether operated by hand or mechanism, as advocated by Lucae and others, is extremely painful and involves such risks that it does not seem wise to subject the patient to them for the small amount of benefit claimed by the advocates of this method. The massage obtained by means of a column of confined air he considers as yielding the best results. After referring to the various methods practiced, such as the manipulation by the fingers, Siegel's or Delstanche's masseur, etc., he gives the preference to a well constructed pneumatic masseur acting on the piston principle. He states that where there is rigidity of the ossicular chain, passive motion must be the best cure.

He has obtained benefit with this method in about 65 per cent. of cases of chronic catarrhal otitis media, and in about 50 per cent. of cases of chronic purulent otitis media. In those cases in which a cure is not established, it frequently arrests the onward march of the progressive difficulty of hearing. It has the advantage of being easy to apply and is harmless even in those cases in which it is not beneficial, and is not objected to by the patient. It does not interfere with the application of other methods, such as Politzerization, nasal treatment, etc.

Jackson insists upon the necessity of using gentleness in the method, and of starting on the exhaust stroke. He also advises that the sittings should be of short duration, and not oftener than thrice weekly. This method should not be placed in the hands of the patient who is certain to

overdo it. He advises otologists not to subject the patient to serious operative measures until after pneumatic massage has been given a thorough trial. SCHEPPENGRELL.

Myositis of the Sterno-Cleido-Mastoid Muscle

JONQUIERE.—Myositis of the Sterno-cleido-mastoid Muscle, Succeeding to Mastoiditis and Otitis Media Purulenta Acuta, and Resembling Bezold's Mastoiditis. *Soc. oto.-lar. suisse.*

A farmer, age 48, suffered with O. M. A. for five weeks, pain having supervened after three weeks of the suppuration and an appreciable infiltration which from the mastoid process covered all the neck posteriorly.

The suppuration dried up after some days. The mastoid process was slightly tumefied, the Mt. separately infiltrated, red, but not perforated.

The patient entered the hospital; the infiltration yielded to the influence of cataplasms and iodide inunctions, and at the end of a fortnight the patient was cured.

Dr. Mehans, the surgeon attending, after the disappearance of the swelling, was able to distinctly mark out all the path of the infiltration, and the disturbance of the muscular function showed clearly the myositis, affecting a great analogy to Bezold's form of mastoiditis. ALDERTON.

Perception of Sound Waves in Fishes.

KREIDL.—Perception of Sound Waves in Fishes. *Wiener klin. Woch.*

Fishes having no cochlea, their ears being considered actually as organs of equilibrum and the greater number of fishes being mute, the author was interested to discover if these vertebrates were really deaf. Numerous experiments upon the goldfish have shown that it reacts to no species of sound produced in the air or in the aquarium; it perceives only violent noises like a pistolshot, or a clapping of the hands, but these are a shock to the whole organism, the skin in particular. Fishes, whose labyrinth has been removed, act from this point of view absolutely just as do those whose excitability has been accentuated by strychnia. Gold fishes are deaf. ALDERTON.

Foreign Body in the Ear.

KUHN.—Foreign Body in the Ear. *Deutsche Med. Woch.*

A child of five got a small stone in the ear, and efforts were naturally made at extraction. When she arrived the next day at the clinic, the auditory canal was found to be denuded of skin. Washing brought out another foreign body, which was the spoon of a sharp curette, but the

stone was absolutely engaged and resisted all efforts at extraction, which were finally abandoned. After several days local and general inflammatory phenomena developed, which rendered interference urgent. The stone could only be withdrawn after turning forward the auricle and opening up through the posterior-superior wall of the osseous canal, for the space of half a centimetre. The Mt. was largely perforated; an abundant otorrhœa persisted several weeks and had not completely ceased at the end of two months. The operatory wound cicatrised without accidents. ALDERTON.

Foreign Body in the Auditory Canal.

LACOARRET.—Foreign Body in the Auditory Canal. *Ann. de la Poclinique de Toulouse.*

The greatest damage done in the ear is not in general by the foreign body itself, but by the attempts at extraction.

He cites the following interesting examples:

1. A cherry stone in the ear. The author only saw the patient after several attempts at extraction by others. After healing the maltreated canal and the perforation by the galvano-cautery, the body was removed by the probe.

2. Child with middle and external otitis after penetration of a grain of wheat and the effort to extract it. The body had remained a year in the canal.

3. A man being persuaded that he had gravel in the ear, his neighbors certified that they could see it and labored so hard to remove it that the osseous canal was denuded in their efforts. When L. saw him, the probe in contact with the bare bone gave the sensation of a foreign body. It is doubtful if the patient is yet convinced of the absence of gravel in his ear.

4. A young girl believed that a pearl from a pin had fallen into the ear. She could only be convinced of the mistake when the pearl was found under a piece of furniture. ALDERTON.

A New Method of Dealing with the External Meatus.

LAKE.—A New Method of Dealing with the External Meatus, in Operations on the Mastoid. *Archives of Otology*, Vol. XXV., No. 3.

The external cartilaginous meatus is thrown forward as in the Panse-Körner operation, and 3 incisions are made as follows: 1. Longitudinally along the superior mesial part of the canal. 2. Inferior mesial; 1 and 2 pass through

cartilage only. 3. Joining outer extremeties of 1 and 2 just at the junction of the concha and meatus; the included cartilage is removed. Incision through the *skin* of the meatus along lines 1 and 3 are made and a flap formed, which accommodates itself to the floor of the cavity when the meatus is replaced. HARDIE.

Oto-Massage in Suppuration of the Ear.

LAUTENBACH.—Oto-Massage in Suppuration of the Ear; Its Value for the Relief of Deafness and in the Treatment of the Suppuration. *Journal of American Medical Association.* Oct. 3, 1896.

In chronic cases Lautenbach has found that he can usually commence with an exhaust pressure of two ounces to the square inch, and gradually increase it to about half a pound to the square inch, often as much as a pound, and rarely up to two pounds to the inch. The discharges are removed in from three to ten minutes. The writer believes that he can, in this way, stop the suppuration more quickly, and that the tendency to the formation of adhesions is lessened. He also employs pneumô-massage in acute suppurative conditions, and believes that the attack is thereby shortened. The treatment is not undertaken when the pain is very severe. In cases of deafness following upon old suppurative disease pneumo-massage is useful, but Lautenbach confesses that permanent results are very difficult to attain, and particularly when immediate temporary increase in hearing power is not obtained. HARDIE.

A Case of Temporo-Sphenoidal Abscess.

MILLIGAN.—A Case of Temporo-Sphenoidal Abscess, Secondary to Acute Left-sided Suppurative Middle-Ear Disease; Operation; Acute Hernia Cerebri; Death. *Archives of Otology.* Vol. XXV., No. 3.

Few cases of intra-cranial abscess secondary to *acute* otitis media have been recorded. The otitis followed influenza, and the operation was done about eight months later. The symptoms were characteristic. Four drachms of odorless pus were evacuated. The patient progressed for six weeks when a hernia cerebri appeared and increased rapidly. Temperature rose to 103° F. The wound was reopened, but no pus found. The patient died of diffuse basal lepto-meningitis. The abscess cavity was found empty. The dura was healthy, no bone lesion could be seen, so that infection probably took place by way of the lymphatics, or small venons radicles. HARDIE.

Otitic Cerebral Abscess in the Occipital Lobe.

MORF.—Otitic Cerebral Abscess in the Occipital Lobe. *Soc. otolar. Suisse.*

Periostitic disturbances were here manifested, as a sequel to O. M. A., without perforation of the tympanic membrane, and without otorhœa. The mastoid region was opened and the antrum cleared, no pus being found in the latter, though the parts were inflamed, After the healing of the inflammation of the middle ear and the recovery of audition, intra-cranial suppuration set in. Two months later the latter was manifested. Left hemi-paralysis was diagnosticated and hemi-anæsthesia, without hemiopia. Abscess of the right temporal lobe was suspected. The autopsy showed two abscesses of the right occipital lobe. ALDERTON.

The Modern Pathology and Treatment fo Acute Otitis Media.

PIERCE.—The Modern Pathology and Treatment of Acute Otitis Media. *Journal of American Medical Association*, December 19th, 1896.

The writer emphasizes the fact that whatever the inflammatory type, catarrhal or suppurative, pathogenic organisms play the most important etiologic role. He mentions in this connection the work of Pes, Gradenigo, Gessard, Kanthack, Moos, and others. Pierce believes that the character of the otitis depends largely upon the mode of invasion. That a purely catarrhal otitis may become purulent there can be no doubt, and when this does occur it is likely that the substrata of the mucosa are invaded, either through the circulation as a general infection, which is relatively rare, from the pharynx, through the lymph spaces of the tuba eustachii, which is less rare, or from the surface of the mucosa, the superficial protecting epithelial cells having been destroyed, though this is not a *conditio sine qua non.*

In discussing the treatment Pierce does not agree with those who regard the normal tympanum an aseptic cavity, although he considers the tympanic secretion to have a certain germicidal power which, however, is easily destroyed. In the details of treatment he closely follows the teaching of Schwartze and Gradenigo — local bleeding and cataplasms are condemned, anodynes abandoned, intermittent hot irrigation, in his opinion, is not well borne, although occasional syringing with sterile salt solution is permitted when the secretions are cheesy. Politzerization

is not merely never performed, but considered a dangerous procedure.

If fever is present the patient is kept in a recumbent position when possible. Paracentesis performed under the strictest asepsis has given the most satisfactory results.

Positive indications are pain, with or without fever, and the demonstrable presence of fluid in the middle ear. As negative indications, (1) the presence of fluid in the middle ear without pain or fever; (2) pain continuing for twenty-four hours with congestion, but without fever or the demonstrable presence of fluid.

The incision is made "along the inferior circumference of the membrane, a fraction of a millimeter from its margin." The discharge is carefully removed by sterilised absorbent cotton swabs, prepared beforehand, and the canal packed with a strip of sterilised gauze (iodoform or naphtholated chinolin of Haug) one-quarter to one-half inch broad, so introduced that it barely touches the membrane. Outside the gauze sterilised cotton, held in place by collodion.

A spirited discussion, participated in by Gehrmann, Owsley, Wilder, Dickerman, Gradle and Ballenger is reported in the same number of the *Journal*. HARDIE.

On the Spontaneous Recovery of Cholesteatoma and Cholesteatoid Affections in the Temporal Bone.

REDMER.—On the Spontaneous Recovery of Cholesteatoma and Cholesteatoid Affections in the Temporal Bone. *Archives of Otology*, Vol. XXV., No. 4.

The writer insists on the impossibility of differentiating clinically true cholesteatomata (in Virchow's sense of heterologous tumors), and secondary accumulations of epidermis, such as "retention masses resembling cholesteatoma," "hyperplastic epidermis" or "epithelial cysts," and suggests that this difficulty in separating clinically these varieties of disease may be the reason why opinions still vary in regard to the prognosis as well as to the best method of operation. He believes, however, that the operation of Zaufal makes a cavity which greatly resembles that produced by the curative processes of nature, and is probably the correct one to perform. He, therefore, opposes the operation with persistent retro-auricular opening. Histories of four cases of spontaneous recoveries are given, of which three were observed clinically, while the fourth is a description of a skull in the Ros-

toc museum. Two of the cured cases are those of a woman, aged forty-six, in whom the large cavity had remained dry for six years; a boy of sixteen, in whose left ear, which was dry, it could be seen that the entire tympanum, together with the recessus epitympanicus, the mastoid antrum and the posterior portion of the meatus had been transformed into a single large cavity. In the last case, a woman aged thirty-eight, the cavity embraced the recesses epitympanicus and the mastoid antrum. The promontory and both windows were normal; the ossicles were absent; no hyperplasia of epidermis; tubes free. HARDIE.

A Case of Pyæmia After Acute Suppuration of the Ear.

RÖPKE.—A Case of Pyæmia After Acute Suppuration of the Ear; Operation; Recovery. *Archives of Otology*, Vol. XXV., No. 3.

The operation was performed twenty-four days after the onset of the acute otitis media. After elevating the periosteum free venous bleeding took place. A little pus oozed out of dilated emissary mastoid vein, but with a probe, further on, a solid thrombus could be felt. Upon removing the mastoid cortex a cavity filled with thick pus and granulations was exposed. After scraping this cavity the vertical part of the laterial sinus was examined and punctured, and a solid thrombus diagnosticated. Recovery was uninterrupted. No outward symptoms of sinus-phlebitis were present. Röpke believes that the origin of the pyæmia was independent of the thrombus of the sinus, and that the infection from the seat of suppuration was propagated through the veins of the bone. It is probable that the thrombus originally occurred by extension through the mastoid emissary.

HARDIE.

The Anatomical Topography of the Ear.

SCHULZKE.—The Anatomical Topography of the Ear in Its Relation to the Form of the Cranium. *Arch. f. Ohrenheilk.*

Conclusions:—1. As points of exploitation for the opening of the mastoid antrum, we must consider as of equal value the superior border of the orifice of the external auditory canal, the spina supra-meatum and the temporal line.

2. Concerning the dangerous petrous bone, no indication is furnished by the form of the skull. Precise investigations have, indeed, shown that the situation of the middle cerebral fossa and of the sinus have no relation

to the anthropological type. Koerner's conclusions should be considered erroneous.

3. It may be affirmed that the middle cerebral fossa does not descend to the same depth on both sides, but it is not certain that the predominance is on the left side. It appears more certain that the right sinus extends more deeply into the bone than the left sinus, and presents oftener the dangerous form. This point should not be forgotten by the operator.

4. The form and condition of the mastoid process have no importance in recognizing the dangerous petrous bone.

ALDERTON.

Trephining the Petrous Bone for a Revolver Bullet.

SCHWARTZ, ED.—*Journal des praticiens.*

Schwartz believes trephining should be done when there are precise indications of the location of the projectile, when it is found to be accessible without necessitating too great danger to the hearing function or to life, when we are convinced that suppuration is inevitable; then the bullet should be searched for and extricated. If these conditions are not met then we should refrain.

CASE: A woman of 40 received the bullet from a revolver at close quarters. There was no symptom of cranial involvement and no facial paralysis. The ball had penetrated behind the right auricle, forming a passage communicating with the external auditory canal and the tympanum, the tympanum being in great part destroyed. The probe showed the projectile to be at a depth of about 2 ctm. After the use of the chisel and mallet the bullet was removed piecemeal. Rapid recovery. ALDERTON.

The Pretended Action of Liquid Vaseline Injected Into the Tympanum.

SUNE.—*Arch. latinos de otologia, Etc.*

The author is no partisan of Delstanch's treatment by massive injections of liquid vaseline. He has obtained no results in a case of dry otitis where he has used this treatment; once the hearing was improved in a patient whose tympanum was immobilized by a cicatricial band following an otorrhœa; but it required sixteen injections to reach this result, which would have been much more quickly arrived at by the aid of a *synechotome*. Moreover, the treatment is painful; the inundation of the tympanum by the vaseline leaves in the ear a sensation of fulness which incommodes the patient for hours.

It is true that Suné does not employ the same technique as Delstanche; this may be the cause of the difference of

opinion. D. recommends injecting two grammes of vaseline oil into the middle ear — Suné instils only twenty drops; for, as the capacity of the tympanum is at most a cubic centimetre, he does not see the necessity of introducing into the tube an excess of vaseline which flows back into the throat and impresses the patient disagreeably.

ALDERTON.

Alveolar Sarcoma of the Cerebellum.

THOMAS, BARKER, FLEXNER.—Alveolar Sarcoma of the Cerebellum; Clinical Report, by H. M. Thomas, M. D.; Remarks on Anatomical Relations of the Cochlear and Vestibular Nerves, by L. F. Barker, M. D.; Pathological Report, by Simon Flexner, M. D. *Johns Hopkins Hospital Bulletin, 1896.*

The patient, a woman aged 30, had suffered from severe headaches for three years, and for one year difficulty in walking (staggering gait). The hearing in her right ear gradually became less and less acute, and this loss of hearing was accompanied by very annoying ringing in the ear. She gradually became quite deaf, being unable to hear either by air or bone conduction. Later she became totally blind, her vision leaving her gradually. Two weeks before death she developed complete right facial paralysis. Thomas believed that the growth involved the corpora quadrigemina on account of the combination of double nerve deafness, the cerebella ataxia and the weakness of the eye muscles. The absence of ophthalmoplegia was explained by the supposition that the tumor was in the posterior rather than the anterior corpora quadrigemina. Flexner found that the tumor was attached to the median side of the left lateral cerebellar hemisphere, its growth being directed forward. It had exerted pressure laterally upon the left corpora quadrigemina, the right being but little, if at all, involved in the compression. The tumor had also flattened the left half of the pons almost to the median line. The left crus and the left superior peduncle of the cerebellum were also pressed upon. Barker's communication must be consulted in the original article.

HARDIE.

II.—NOSE AND NASO-PHARYNX; ACCESSORY SINUSES.

Electrolysis as a Treatment for Deviations, Spurs and Ridges of the Nasal Septum.

BALLENGER.—Electrolysis as a Treatment for Deviations, Spurs and Ridges of the Nasal Septum. *Journal of Am. Medical Ass'n.*, Jan. 1, 1897.

Dr. Ballenger states that in electrolysis the primary

and secondary action is to be taken into account. By pripmary electrolysis is meant the chemical dissolution of the elements composing the tissue. By secondary electrolysis is meant those changes which occur owing to the presence of the chemicals liberated by the current. The primary action takes place during the time when the current is passing through the tissues, while the secondary action occurs so long as the newly liberated chemicals, hydrogen and alkalies or oxygens and acids, remain free in the tissues. In some cases this may continue active for several days.

The advantages of the bipolar method for operation in the nose are, first, the current is limited to the offending tissues, and shock, from the diffusion of the current to the brain, is avoided. Second, perforation of the nasal septum is avoided as the current is limited to a field parallel to the plane of the septum, *i. e.*, to the path between the needles in the growth. Third, the method is simpler and less painful than the monopolar method.

Ballenger gives a tabulated report of 21 cases in private practice, and, as the result of his experience, states that while the results are quite favorable in most cases, the fact remains that as a method it is neither so simple nor so sure as others at our command. He agrees with Bresgen (*Journal of Lar., Rhin. and Otol.*, Jan., 1895), Hajek, Stoerk, Heymann and Chiari that its scope should be limited (1) to those cases in which it is impossible to carry out the usual surgical treatment, either on account of weakness or other disability; (2) to those cases in which more radical methods are refused. He believes that electrolysis is not nor can it ever be a therapeutic measure which can be used by others than experienced specialists, because, when carried out by unskilled hands, it can only lead to disaster. SCHEPPEGRELL.

Treatment of Chronic Inflammation of the Frontal Sinus.

BOTEY.—Treatment of Chronic Inflammation of the Frontal Sinus and Consecutive Intracranial Lesions. *Revista de Ciencias Medicas*, Nov. 25, Dec. 10, 1896.

An elaborate paper on this subject was read by Dr. Richardo Botey of Barcelona, at the first Spanish Oto-laryngological Congress, held in Madrid in November, 1896.

Botey introduced the narration of three cases by the statement that inflammation of the frontal sinus may occur after any case of coryza, but that cure of the coryza,

restoration of the general health and, above all, the necessary drainage, prevents many cases from assuming a chronic form. Chronic inflammation, however, is very serious, and seldom continues without involving the brain sooner or later.

CASE 1. The patient was a girl, 19 years old, who had suffered for 2 years from suppuration in the right nasal fossa, beginning soon after an attack of diphtheria. She was poorly nourished. There was exquisite tenderness to pressure at the internal and upper angle of the orbit, and there had been some edema of the eyelid, and at night there was violent pain in the supraorbital region. A rhinoscopic examination showed considerable swelling of the right middle turbinate, some fungosities in the infundibulum and a small quantity of pus in the middle meatus. The diagnosis was either a simple inflammation of the frontal sinus, or one complicated with involvement of the ethmoid cells and maxillary antrum. The latter proved to be correct, whereupon the antrum was exposed, pus evacuated; but there was still the frontal sinus, which was reached through the nose. However, although the pus was less in quantity and the pain diminished, a cure was not effected until an external opening had been made at the root of the nose, into the sinus; through the sinus a probe was pushed into the middle meatus, then everything cleaned, gauze inserted (for drainage) through the bony opening and brought down into the meatus, after which the external wound was reunited and all treatment carried on through the nose. Recovery took place without interruption and the condition was restored in six weeks.

Botey concludes from this that a bold external opening is the best; that gauze for drainage surpasses that by tubing; and that a special sound for entering the sinus from within the nose is unnecessary, because a simple puncture from above gives all the passage required.

CASE 2. The patient was about 20 years old. Lived in the country and had been treated by local physicians during the acute stage of the disease. The diagnosis was easy to make, as there was a great prominence on the forehead, and an external opening through which, unfortunately, a physician had passed a probe (undoubtedly infected) for some distance—probably into the cerebral tissue. The diagnosis was made of subacute osteo-myelitis of frontal bone, with sinusitis on both sides, and perforation of the posterior sinus wall on left side. From all appearances infection of the cerebral meninges had already taken place. There was at first some fear that the patient was too weak to tolerate an anæsthetic, but there was no trouble on that score. After puncturing into both sinuses (trephine), the cranial canal cavity was entered on the left side, where there was found an intracerebral and subdural abscess with some fungosity of the dura-mater. The entire area was curetted and drainage established. The patient rallied exceedingly well from the operation and for sometime was up, out doors, with normal appetite and temperature. Drainage was then procured through the nose. Sometime afterward inflammation

set in, and the external wound was enlarged, when there was found a cerebral hernia which was abscised and the fungosity extirpated; but the patient finally died in coma, with some temperature, leaving no doubt that there existed an incurable meningo-encephalitis.

The case was very complicated and promised at one time to recover; in fact, the sinus inflammation was cured, but the intra-cranial infection had become too severe. The drainage operation was performed about the same as in the first case.

CASE 3. In this patient there was inflammation of the right frontal sinus with retention of pus, but without involvement of the other cranial sinuses. There was no discharge into nose. The cerebral symptoms were severe. On opening into sinus externally (by trephine) the diagnosis was confirmed, but there was found — either pathologically or traumatically established as a consequence of the operation—a perforation into the cranial cavity through the posterior wall of the sinus. This cranial opening was enlarged at first outward, but finally in every direction. There was then found some fungosity of the dura mater and a small subdural abscess. The curette was used freely and all accessible parts freely flushed and disinfected. Cerebral puncture to explore for pus, gave negative results. Finally, with subsidence of all cerebral symptoms, cicatrization occurred over this posterior opening from sinus into cerebral cavity, and this fibrous covering removed the danger of further cerebral infection. Two months after the original operation, a second operation was performed, which succeeded in establishing free communication between the frontal sinus and the middle meatus of the nose. An osteo-periosteo-cutaneous plastic operation to cover defect in forehead was then made, and the patient was discharged with report of complete recovery.

From his experience Botey makes the followfng deductions:

1. In frontal sinusitis, with absolute or nearly absolute retention of of pus, it is best to trephine externally through frontal bone as quickly as possible.

2. When the sinus has been opened, curetted and disinfected, the external opening may without fear be closed and allowed to heal by primary union, provided an ample communication has been made to the middle meatus, into which everything can be drained. Rubber drainage tube is not necessary.

3. The appearance of cerebral symptoms, it indicates perforation from sinus into cerebral cavity. There must, thereupon, be made an opening into brain through the posterior wall of sinus (trephining through original wound, if necessary), and all granulations removed, cerebral hernias cut off, the brain explored for suppurating tracts—a not

difficult and a harmless operation, if carefully performed.

4. If action is prompt, an extra (or intra) dural collection of pus will be avoided, and the lesion will become an innocent one, however much granulation there may be on the membrane.

5. When we fear to operate, or operate too late, the case will turn out fatally, if cerebral symptoms occur.

HALE.

Non-Fetid Ozena and Chronic Aural Catarrh.

BURNETT, C. H.—Non-Fetid Ozena and Chronic Aural Catarrh. *Philadelphia Polyclinic*, Oct. 3, 1896.

Although the term non-fetid ozena may appear inapt, it is entirely justifiable in some cases of atrophic nasal catarrh. It is not fetor, but the formation of crust on the atrophic mucous membrane, which is the essential characteristic of ozena.

A woman of 40 years, who was otherwise in good condition, suffered from so-called nasal catarrh. The discharges and crust had increased in quantity and annoyance, but no odor had ever been noticed. Within a year both ears had become affected with tinnitus and had become stopped up and dull of hearing at times. The aural symptoms had grown worse since the vigorous employment of the nasal douche.

An examination showed marked atrophy of the mucous nasal membrane of both nares, especially in the region of the superior turbinate bones. The sense of smell was entirely lost; the characteristic leatherly, whitish-yellow flakes of secretion were observed, but there was an absence of an offensive odor of the nasal breath. In fact, the odor of the patient was rather pleasant. The ear symptoms improved, but did not disappear under systematic treatment of the nasal disease. The absence of offensive odor in atrophic nasal catarrh is a clinical disadvantage to the patient, as the true nature of the nasal disease may not be suspected, and, therefore, the proper treatment not applied by the general physicians under whose care they may be.

Atrophic rhinitis without fetor is frequently met with, but where the characteristic flakes of secretion are present, fetor is almost invariably present. That this may not be perceived at the time of examination is easily accounted for, if the patient is in the habit of systematically cleansing the nostril, which appeared to have been the case in the

present instance. As regards the statement of the patient, that no odor had ever been noticed, this is but little more reliable than many statements of a similiar character which we hear in our daily practice. Patients, especially women, are peculiarly sensitive to any suspicion of odor from a catarrhal affection, and will do all they can to prevent it, and will frequently not hesitate to deny it. In some cases this may be due to the fact that, as the olfactory sense has become diminished or destroyed, as in the case above reported, the patient may be unaware of the offensive odor and the friends may have hesitated in informing her of it. It is to be hoped that bacteriology will furnish us with the means of fixing the limitations of this disease. SCHEPPEGRELL.

Pathology and Treament of Ozena.

CAPART.—Pathology and Treatment of Ozena. Proceedings of the Belgian Society of Otol. and Laryng., June 7. 1896, *Journal of Laryngology*, Dec. 1896.

Capart states that vibratory massage by hand, or by the electric motor, has proved disappointing in the treatment of ozena, and that none of the methods which have been advocated can compare with electrolysis, especially the bipolar method.

He believe that 90 per cent. of all cases of ozena may be cured, and that one sitting is sufficient. A current of 20 milliamperes should be used for 20 minutes at each sitting. If the patient cannot stand the bipolar method, the unipolar method may be used with the negative pole to the arm, thigh, etc. In children chloroform may be used, and Capart, in more than 300 cases, has never seen an accident from this treatment.

In the discussion, Bayer stated that he has found few patients who could tolerate more than six to seven milliamperes, and even this caused severe pain in the ear of the same side. Its success in many cases, however, was striking, the odor and crust disappearing rapidly. He calls attention to the possibility of danger in this method, and relates a case in which a few days after electrolysis the patient developed a hemorrhagic otitis media, then a meningitis which proved fatal.

The unfortunate result of Bayer is difficult to explain, and, no doubt, Capart is right when he states that it is due to faults in carrying out the treatment.

Rousseaux has used this method in about 40 cases, and

without accident. He advises that in the middle turbinate the needle should be driven in from below upward, then turned and driven from before backward. If this were done, accidents would be impossible. SCHEPPEGRELL.

A New Operation for the Correction of Deflections of the Nasal Septum.

GLEASON, Philadelphia.—A New Operation for the Correction of Deflections of the Nasal Septum. *Laryngescope*, Nov., 1896.

Deviations of the septum can scarcely be considered pathological conditions unless there is a sufficient degree to cause decided stenosis in the nares toward which the septum is deflected. He advises the following operation: After thorough cocainization, a Bosworth saw is introduced into the obstructed naris close to and parallel with the floor of the nose. The septum is sawed transversely until the teeth of the saw have penetrated somewhat deeply into the cartilage, or bone. The direction of the sawing is then rapidly changed until it becomes nearly vertical. Carefully retaining the saw in a position parallel to the intermaxillary suture, the sawing is continued until a U-shaped incision has been made through the septum, surrounding, except above, the whole deflected area of the septum. From the position in which the saw was held while sawing upward, the U-shaped cut through the septum is larger on the convex side of the septum.

As the result of sawing, there is produced a buttonhole with beveled edges through the septum, covered by a tongue-shaped flap. From the lower end of the flap, and from the portion of the septum upon the concave side below the U-shaped incision, the mucous membrane is removed with the end of the saw or a knife, and the flap is thrust through the buttonhole in the septum with the finger tip. The success of the operation depends largely upon the care that is exercised to thrust the flap far enough through the septum to enable its lower edge completely to clear the lower bevel edge of the buttonhole. When this is accomplished, the resiliency of the septum holds the denuded surfaces firmly in contact, and there is little or no tendendency for the flap to return through the buttonhole and the septum to assume its former deviated position; in fact, the flap tends to flatten out its thin beveled edge in front, behind and below, so that the operation is applicable to nearly all forms of septal deviations, because it allows for redundancy of the septum in practically all directions.

In the conclusion of the article Dr. Gleason states that, since writing this description of the operation, he finds that Dr. Arthur W. Watson, of Philadelphia, has already published an article in which the essential principles of this operation are advocated. SCHEPPEGRELL.

Alarming Secondary Hemorrhage Following the Removal of a Superior Turbinated Body.

KNAPP, G.—Alarming Secondary Hemorrhage Following the Removal of a Superior Turbinated Body. *Louisville Medical Monthly*, Nov. 1896.

Dr. Knapp reports the case of a man of 42 years who had suffered from naso-pharyngitis and deafness of the left ear for many years. The inferior turbinal was found largely hypertrophied, touching the septum and closing up the middle meatus. As the application with the galvano-cautery was ineffectual in correcting this condition, it was decided to remove the turbinal, which was successfully done with the nasal saw, scissors and cold snare. There was considerable reaction, and 12 hours later a severe hemorrhage took place, which was treated by tamponning the nostril with cotton, which was left in the nostril for three days. The removal of this was followed by a second hemorrhage, which was controlled in the same manner as the first. The removal of this was followed by only a light hemorrhage.

(The tamponning of the nostril with cotton, and leaving this in the nasal cavity for three days, is a procedure that is attended with considerable danger to the patient, not only of general septic absorption, but also of setting up inflammatory processes in the accessory cavities and the ear. A strip of iodoform gauze of sufficient length to tampon the nostril is preferable, but it is only in exceptional cases that even this should be allowed to remain in the nasal chambers for more than 24 hours. The literature on the subject shows numerous cases of unfortunate complications following this method, even in cases in which due precautions were observed. SCHEPPEGRELL.)

The same author also reports a secondary hemorrhage following the removal of a hypertrophied tonsil with the galvano-cautery snare. The operation was followed by a considerable reaction, the uvula being inflamed and the eschars of extensive size. On the third day a severe hemorrhage took place, which caused the patient considerable depression. There was also great pain in the ear. An examination showed that the eschar on the right

tonsil was missing. A spray of cocain solution was used, which controlled the hemorrhage and the case gradually made a complete recovery. SCHEPPEGRELL.

The Sub-Mucous Linear Chemical Cauterization for Hypertrophies of the Turbinals.

PIERCE, NORVAL H.—The Sub-Mucous Linear Chemical Cauterization for Hypertrophies of the Turbinals. *Medicine*, Nov. 1896.

Dr. Pierce advocates for this method the cheapness of its armamentarium, its simplicity, the conservation of the mucous coverings, and the fact that it is less terrifying to the patient than electrical cauterization. His method is as follows:

After anæsthesia is complete, an incision is made in the anterior head of the turbinated body about a quarter of inch from the muco-cutaneous junction, the knife being carried nearly parallel to its surface until the guard is reached. He at first made this incision by ignipuncture, but found it less satisfactory than the cold incision.

After the slight hemorrhage ceases, he proceeds to the next step. The blunt dissector is introduced into the incision, and gradually insinuated, with as little up-and-down or lateral motion as possible, beneath the mucous membrane, *i. e.*, in the sub-mucous connective tissue. This may be continued along the entire length of the turbinate body until the resistance of the head of the dissector against the mucuos membrane is felt as it dips down to form the posterior head. Care should be taken not to break through the mucous membrane at any part of the course. Perhaps a few drops of blood will escape from the anterior incision during or immediately after this stage of this operation, but hemorrhage is always insignificant.

After this ceases, the last stage of the operation is begun. He insinuates into the anterior incision, quickly and dexterously, the head of the cup-probe, in the cup of which is fused chromic acid. This is caused to slowly follow the track made by the dissector. It is then withdrawn, the nose is syringed or sprayed out through the opposite nostril with an alkaline solution, and the operation is complete. SCHEPPEGRELL.

Supplementary Course of Treatment Required for Chronic Nasal Inflammation.

RUMBOLD (St. Louis, Mo.).—Supplementary Course of Treatment Required for Chronic Nasal Inflammation. *Atlanta Surgical and Medical Journal*, Oct., 1896.

Dr. Rumbold calls attention to the necessity of supple-

mentary courses of treatment in chronic inflammation of the nasal passages at such seasons of the year when the patient is most liable to suffer from irritation and inflammation of the nasal passages, throat and ears.

It is not to be expected that the blood vessels of the mucous membrane, and of the sub-mucous tissues, which have been enlarged for a long time to many times their normal diameter, should be reduced to their normal condition by the curative effect of a few month's local application. Good results can only be obtained by keeping the patient under observation for a considerable length of time and continuing the treatment at stated intervals, depending upon the nature and chronicity of the disease.

SCHEPPEGRELL.

Some Recent Advantages in the Treatment of Atrophic Rhinitis.

SEISS, RALPH W. (Philadelphia).—Some Recent Advantages in the Treatment of Atrophic Rhinitis. *Medical News*, Nov. 28, 1896.

Dr. Seiss, after insisting upon the importance of cleanliness of the affected region, states that the most important method at our command in the therapeutic management of atrophic rhinitis is the use of massage. He ridicules the great stress which many authors have laid on the elaborate directions for the number of vibrations, and the special manner in which they should be made, which they deem necessary to secure favorable results.

The principle is essentially a simple one, and depends upon the surgical and vascular stimulation, which must never be carried to the point of causing inflammatory changes. A simple method is to wrap an aural cotton carrier with a firm fusiform tuft of cotton of one inch in length by one-sixteenth of an inch in diameter, then introducing this into the nasal chamber and bringing it in firm contact with the mucous membrane, and rapidly and systematically rubbing the parts, great care being taken not to bruise or injure the parts in any way.

Seiss also considers the faradic current a valuable method of stimulation in these cases. In this method a long nasal electrode is carried back through the nose to the posterior pharyngeal wall, the positive pole being used in the nasal cavities, and the negative, a long sponge rheophore, being held againt the neck or in the hand of the patient. The seances may occupy five to ten minutes; real discomfort being always a signal for its discontinu-

ance. Of these two methods Seiss prefers the nasal massage.

(It is somewhat remarkable that the author does not refer to the great advantage of the several mechanical instruments which have been devised as a means of applying massage to the mucous membrane. These appliances enable the operator to use massage more systematically and without the fatigue which accompanies the manual method.) SCHEPPEGRELL.

An Investigation of the Frontal Sinuses of 120 Skulls from a Surgical Aspect.

TILLEY.—An Investigation of the Frontal Sinuses of 120 Skulls from a Surgical Aspect, with Cases Illustrating Methods of Treatment of the Disease in this Situation. *Lancet*, Sept. 26, 1896.

Dr. Tilley states that, as a standard, the frontal sinus may be considered normal which measures 28 mm. from the mid-line outward, reaching to about the junction of the inner and middle third of the supra-orbital ridge, and which, in a line extended upward from the nasion, measures from 20 to 22 mm. Some of the most marked variations which he has met with in his investigations of the frontal sinus as follows:

1. F. Septum complete and median; sinuses very small and confined to nasal region of the bones.

2. F. Septum complete and inclined to the right; right sinus very small, extending into the inner end of the supra-orbital margin; the left occupying nearly the whole of the nasal region of bone.

3. Both sinuses large and extended outward on each side for two-thirds of the supra-orbital margin, and upward from nasion 30 mm.; septum is complete and deviates to the right bone.

4. Septum complete. Both sinuses very extensive, excavating almost the whole of the lower fourth of the frontal bone and extending into the basis of the external canula process and beneath the temporal surface of bone.

5. Septum is complete and deviates strongly to the right. Left sinus extends upward for 22 mm. to 30 mm. to the left, from the mid-line 10 mm. to the right from the mid-line. Traversed by incomplete septum.

6. Septum is complete and median, and a nearly complete septum divides the upper part of the right sinus into right and left chambers.

7. F. Left sinus large and nearly median in position to

right, but only represented by a small depression on the under aspect of the nasal portion of bone.

8. Septum complete, its upper part deviating, line almost at right angle, so that the right sinus which is traversed by two or three incomplete septa extends to beneath the left superciliary ridge 20 mm. from mesial line.

9. Septum median and extends upward 40 mm. and outward right and left 40 mm., its extension backward over orbital plate being some 15 mm.

10. Septal region of bone very prominent but small sinuses. Septum complete.

11. Very prominent brow ridges but very small sinuses. Septum complete.

12. M. Sinuses absent. Prominent forehead.

13. Septum complete and more to the left side.

14. M. Right sinus absent and left occupying whole nasal portion of bone, and extends into the beginning of right brow ridge.

15. M. Septum complete and deviating to left side so that a median opening of small trephine in the lower median part of the frontal bone would only open to the right sinus.

16. M. Right sinus small and left absent.

17. M. Bone large and heavy; sinuses absent.

18. On posterior wall of right sinus is a small hard exostosis the size of a small bean.

19. Septum nearly 18 mm. thick; complete.

20 This is the only case of all examined in which, on opening the sinuses, the septum was found incomplete, but from the shape of the aperture he is inclined to think it was a traumatic opening.

21. There are no frontal eminences; the infundibulum is situated at a depth of 28 mm. from the anterior surface. The septum is complete and the sinuses very large, extending backward over the orbital plates of the frontal bone to their junction with the small wings of the sphenoid and externally into bases of external canula process.

22. No sinuses (adult skull).

23. Small sinus on the right but developed on the left.

He found that the septum was complete in almost every case, and that the prominences of the supercilliary ridges are no guide to the extent or presence of the sinus beneath them. The depth of the infundibulum from the anterior surface varies very much. As a rule, it is situated much

further back than is generally supposed. There is also a great deal of variation in the direction and patency of the fronto-nasal passages.

For operative purposes, he advises the median vertical skin incision, as the scar is in the median line, and, being in the line of the natural skin cleavage, is scarcely noticeable a few weeks after the operation; a very different result from the puckered scar which is seen in those cases which have been opened over the superciliary process.

SCHEPPEGRELL.

Cerebral Abscess Following Suppuration of the Frontal Sinus.

TREITEL (Berlin).—Cerebral Abscess Following Suppuration of the Frontal Sinus. *Deutsch. Med. Woch.*, No. 47, Nov. 19, 1896.

Literature contains but 21 cases of cerebral diseases following affections of the frontal sinus, among then nine intracerebral and four extradural abscesses. The author contributes a case observed for several years, and is able to add the result of the post-mortem examination. Miss N. A., 22 years old, came for the first time March, 1894. Her nose was insufficient for breathing; there was yellowish discharge from both sides, especially the left. The right side appeared narrow but free from pathological changes, while, on the left side the whole middle turbinal was covered with polypoid growths and yellowish secretions, which part had formed scabs. No sensitive part could be found on pressure. Translumination was negative as was a probatory puncture of the right antrum of Highmore. The polypoid granulations were removed from the posterior end of the middle turbinal portion and ceased for a few weeks only. When the patient returned in June pus could be seen trickling from the posterior end. This was removed, and the posterior ethmoid cells thereby opened. Secretion and headache stopped for four months. On her return after that time she complained more of the profuse yellowish discharge from the left side than of headache. The anterior end of the middle turbinal was again found covered with polypoid growths and pus at its inner side on removal of this there was improvement for some weeks. In December, 1894, severe headache set in which the patient could refer to the left side of the forehead. There was sensitiveness on pressure. Operation was refused till Dec. 22, when a swelling appeared. An incision was made in the furrow between the eyebrows. The bone did not appear diseased. On chiseling away one

square cm. the dark blue mucous membrane of the frontal sinus protruded, emitting, on incision, creamy fetid pus. The cavity was nearly filled with granulations, which were scooped out. The posterior wall appeared roughened. The passage to the nose was freed from granulations and made pervious. Iodoform gauze. Pains did not cease after the operation as is usual after opening into such cavities filled with pus. Fetid secretions and the granulations reappeared. They were scraped away. The probe could be passed into the cranial cavity through a spot in the rough posterior wall of the frontal sinus. Extradural abscess was suspected, especially as pain was felt all over the left side.

Dr. Rotter was called in. He made a temporaary resection of the anterior wall of the frontal sinus, and found the dura mater exposed to the extent of 1 cm. The surrounding softened bone was scraped away, but no pus appeared. The brain itself was, therefore, then punctured but in vain. The anterior wall of the sinus was put in place again. Headache was but little improved. May 20, spasms and right hemiparesis set in. All other symptoms of cerebral trouble were missing. May 22, the brain was freely punctured without result. With slight elevation of temperature, a prolapse formed, within four weeks, of the size of a hen's egg. Patient felt remarkably well during this time, took nourishment willingly, which she did not do before, and was in very good humor, which sometimes made the impression of being unnatural.

After about two weeks, the surface of the prolapsed portion became gangrenous. It was removed with a scalpel, and the base touched with Paquelin's cautery. The prolapse gradually shrank. The patient was discharged Aug. 6, although there was still some non-fetid secretion from the wound. Hemiparesis, especially of the facial nerve, still present. The secretion soon became fetid again. After another operation, which proved of no permanent benefit, spasms set in, followed by a period of amelioration of the symptoms until, at Christmas, she suddenly lost consciousness for three days. Headache then increased, if possible. In attempting to give vent to the pus by clearing out the ethmoid cells it was seen that the brain had prolapsed (March 18). March 21, death with convulsions.

Post-mortem examination:—Dura rather succulent, can

be easily peeled from skull and pia mater excepting in the region of the left frontal lobe, where it is adherent to the brain surface. On removing that portion of the lobe grown to the bone, it tears and opens up a large cavity filled with a mucous mass, near the turn of the second frontal gyrus. At the base, the pia mater is covered with a deposit partly greyish-red, partly greenish-yellow; this purulent covering extends to the medulla. Hemorrhagic imbibition of the left frontal lobe. The cavity is in the medio-basic part of the frontal lobe and communicates with the lateral ventricle; on its floor grumous masses but no pus. The contents of the ventricle are similiar. Diagnosis: Abscesses lobi, frontalis, sinistra, meningitis, basilaris, purulenta.

Examination of the skull: Posterior wall of the frontal sinus nearly entirely gone. Only a small portion of the horizontal plate of the ethmoid bone left; the dura mater above it shows a defect with discolored margins. Left sphenoid cavity is filled with brownish mucus; the right empty.

The abscess sought for in vain during life was found post-mortem. It was much larger than was to be expected and, judging from its contents, must have lasted for years. There must have been a focus near the anterior central gyrus quite early, because hemiparesis remained after the spasms of May 20; and the persistence of the facial paresis shows that there must have been an abscess at the base of the brain, while the other pareses can be explained as transient irritations. According to the experience in otitic brain abscesses and those published as consequent upon frontal sinus suppurations, it appears very improbable that this was the site of the original abscess, which is always near the focus of the bone. It seems quite probable that there were several small brain abscesses which extended from the surface of the frontal lobe lying upon the frontal sinus, to the precentral gyrus. They later grew and united. Their incipient small size and deep basal situation would explain why pus was never obtained by the exploratory needle. A later puncture might have been successful. Nevertheless, the patient could hardly have been saved thereby because there was, too, a diseased condition of the base, communicated from the ethmoid bone. This last really brought on the end, which was hastened by the operation.

A topical diagnosis of frontal sinus cerebral abscess

can only be made when there is motor aphasia and the focus is on the left side. But a diagnosis of cerebral complication alone warrants an operation, especially if there are symptoms of intracranial pressure. Even the persistence of severe headache after opening the sinus is sufficient indication for operative interference. It is at least necessary to expose to view the posterior wall of the sinus. For in nearly all cases recorded, it appears that there was carious destruction of the posterior wall. From it the inflammation invades the dura mater and leads to the formation of an extradural or intracerebral abscess, or to a meningitis.

The close relations between ethmoid bone and frontal sinus, and the frequence of simultaneous disease in both, make it often impossible to decide to which to ascribe the cerebral complication. If evacuation of the sinus is insufficient, the horizontal plate of the ethmoid must be exposed in order to examine and treat the inferior surface of the frontal lobe.

In consideration of the cerebral complications (which may remain latent), the author seconds Kuhnt's suggestion to remove the entire anterior wall in every case of frontal sinus operation. By this method the suppuration is not only cured in the safest and quickest manner, but a clear view is obtained of the posterior wall. It is to be commended all the more as repair of the defect sets in soon and without disfiguration. MORGENTHAU.

III.—MOUTH AND PHARYNX.

A Case of Foreign Body in the Tongue.

ANDERSON (Melbourne).—A Case of Foreign Body in the Tongue. *Australian Gazette*, Sept. 21, 1896.

The patient had jumped off a pier to rescue a man who had fallen into the water, and in doing so his chin came in violent contact with the hawser by which the steamer was moored to the pier. His tongue was much cut, but he took little notice of the matter in the excitement of rescuing the drowning man. A month later the tongue was still much swollen, and the patient was able to swallow only with difficulty. The upper surface of the tongue showed no scar, but on the opposite surface there was a small cicatrix and on this a sinus from which pus exuded. On passing a probe a hard substance was readily felt, which proved to

be the amber mouth-piece of a pipe one inch in length. The patient then remembered, for the first time since the accident, that he had been smoking when he jumped from the pier. The wound in the tongue healed up without further trouble.

In the discussion of this communication before the Victorian Branch of the British Medical Association Dr. Springhorpe narrated a case in which a piece of grass an inch long had entered the back of the floor of the mouth. Nothing could be seen of it soon after or for four months subsequently. There was a sense of irritation and finally suppuration. Eight months after its entrance the suppurating focus was probed and cut, and for the first time the foreign body seen and removed.

Dr. Stirling also mentioned a case in which a hard indurated swelling of a syphilitic patient had suggested aural infection, but from which 12 months later a black pin made its appearance. SCHEPPEGRELL.

A Case of Inherited Cleft Palate.

FEIN, J. (Vienna).—A Case of Inherited Cleft Palate. *Wien. Klin. Woch.*, No. 43, 982, 22 Okt., 1896.

The causes of the malformations due to arrest of development, such as harelip, cleft plate, etc., are not fully known. According to Rokitansky there are two opinions: either the cause lies in the malformation of the germ, or the malformation is produced by various influences acting upon the germ during its development. The supporters of the first theory lay the greatest stress on the heredity of malformations; while the others, who are much more numerous, think it probable that certain parts are prevented from uniting by adventitious obstructions as parts of the fetal body, masses of detritus, etc. This case is reported because defects inherited from the father are rare, and because it is a posterior cleft palate (uranocoloboma), to be traced in three generations. A. B., 8 years old, otherwise healthy, of normal intelligence, shows but the one abnormality. Soft and hard palate are cleft in the middle line from before backward, so that the apex of the three-cornered cleft extends to the alveolar process of the upper jaw. On the posterior wall a thick cushion of adenoid tissue can be seen and felt, from the vault to near the tongue. The septum is slightly deviated. The girl's voice is rather unintelligible. It is a case of urano-coloboma posterius due to non-union of the palatal

bone and the posterior parts of the palatal processes of the upper jaw. The child's father, F. B., 37 years of age, has a rather nasal voice. Examination reveals a cleft uvula, and, on phonation, an elevation of the non-cleft, soft palate in the same three-cornered shape which corresponds to the palatal defect in the child. This is confirmed by palpation, only that it does not reach so far forward. The father's mother shows a similiar, although much shallower indentation on the hard palate, and in the middle line of the soft palate a white raphé of extraordinary denseness. The other members of the family, two sisters and two children of F. B., have normally developed organs. The child's mother, who could not be examined, was said to have no abnormality. It thus appears that a palatal defect, of which only an indication can be found in the first generation, is exaggerated in the second, and becomes a anomaly of development in the third generation. The fact that the father has, at the same time, a cleft palate and a bony defect without defect of soft tissue suggests that the hard palate be palpated even if it appears normal. Finally, this case may be added to six reported by Boucheron in which cleft palate was accompanied by adenoid vegetations. The latter author advances the opinion that early development of the adenoid mass may hinder union of the palate in the embryo, and also cause other malformations in the pharynx and nose. It is not surprising that adenoid vegetations, being embryonic tissue, later in life disappeared partly or altogether.

MORGENTHAU.

Malignant Tumor of Tonsils.

HAMILTON.—Malignant Tumor of Tonsils, with Report of a Case. *Montreal Medical Journal*, Sept., 1896.

Dr. Hamilton reports the case of lymphangioma of the right tonsil in a man 22 years of age. The only symptom complained of by the patient was difficulty of breathing at night for two weeks preceding his visit. The tumor was three inches long, three-fourths of an inch wide and one-half inch thick, and was somewhat pear shaped. It was removed by the galvano-cautery snare. SCHEPPEGRELL.

Tuberculosis of the Tonsils

RUGE.—Tuberculosis of the Tonsils, from a Clinical Standpoint. *Virchow's Archiv. American Medico-Surg. Bull.*, Oct. 10, 1896.

The author believes that tuberculosis of the tonsil is much more frequent than has heretofore been assumed.

It can seldom be demonstrated clinically, because ulceration is often absent. The only symptom may be enlargement of the tonsil. The occurrence of primary tonsillar tuberculosis is probable. He reports what he believes to be such a case, the tuberculous process extending from the tonsil to the cervical vertebræ. He also reports a case in which caries of the spine seemed to have followed tuberculosis of the tonsil. The author made microscopical examinations of the tonsils from 17 individuals. Seven of the cases had tuberculous deposits in other localities. In five cases, also complicated with pulmonary tuberculosis, tubercle bacilli were demonstrated in the tonsil tissue. The observations of the author agree with the results of Strassmann, who found tubercular infection of the tonsils in 13 out of 15 cases of tuberculosis of the lungs.

Tuberculous infection may occur in various ways: (1) Through the blood, *e. g.*, miliary and other form of generalized tuberculosis; (2) through the lymph, *i. e.*, secondary to tuberculosis of the cervical glands; (3) through the sputum, particulary in the tuberculosis of the lungs; (4) through the inspired air; (5) through the food, particularly milk and flesh infected with bovine tuberculosis.

The author concludes that the tonsils are an important primary seat of tuberculous infection. Children who suffer from enlargement of the tonsils should not be permitted to live with phthisical relatives, especially if the latter have expectoration. For not only is the inspired air laden with tubercle bacilli, but the food and eating and drinking utensils may be contaminated with bacilli from the air or hands and mouth of the infected one. When the tonsils have been enlarged for a long time they should be extirpated; and removal may be beneficial even when tubercle already exists. SCHEPPEGRELL.

IV.—LARYNX.

Anatomical Examination of the Stenosed Larynx.

BENDA, C. (Berlin.)—Anatomical Examination of the Stenosed Larynx. *Arch. f. Laryng.*, 1896, V. 228.

The importance of examining transverse sections of the larynx in investigating the topography of the cavities of that organ has not been recognized in morbid anatomy as has been done in normal anatomy. The reason seems to lie in the customary post-mortem method, consisting in making an incision through the posterior wall, and sepa-

rating the cartilaginous walls either by bending or breaking them apart, in order to bring those parts into view which cannot be seen from above. With all its well-known advantages this method cannot but affect the finer changes of the lumen due to swelling of the walls, to exudates or foreign bodies. Transverse sections would be of manifest value in these cases. It is the object of the paper to show how to make them with preservation of the natural relations and shapes of the different parts as easily as it is difficult to obtain them by sawing through specimens after freezing them. The organs are "fixed" during 24 hours in a 10% solution of nitric acid (90 Vol., Aq. Commun.. 10 Vol., Acid. Nitric., Ph. G.). Without being washed, tney are then put into a 2% solution of bichromate of potash; which must be renewed on becoming turbid if the specimens are large. After 48 hours they are well impregnated, as should be tested by an incision. After being thoroughly washed for several days, they are best adapted for microscopic examination; they keep nicely for weeks if the water is renewed occasionally. To preserve them indefinitely Flemming's mixture of equal parts of water, glycerine, and alcohol is to be recommended. They may be prepared for microscopic examination by freezing and cutting or by hardening again and impregnating with celloidin. The value of this method for the latter work has been acknowledged by others. But it offers great advantage for microscopic examination (aside from the drawback of altering the colors), especially when the relations of the parts, the configurations of the cavities, are to be considered. It penetrates rapidly and actively; it hardens the tissues quickly and well, so that smooth sections can be made; it causes but little shrinking and swelling, and decalcifies at the same time; it changes the natural colors, it is true, but makes the tissues appear sharply differentiated, and imparts, especially, to the blood within the vessels a decided blackish-brown hue; it is, finally, simple and cheap to an extraordinary degree.

In illustration the author adds most excellent pictures of the aditus laryngis and of transverse sections of the larynx in two cases of diphtheria. The first case is one of pure laryngeal croup in a child; the second, of faucial diphtheria with inflammatory laryngeal edema. In both, the laryngeal lumen is greatly encroached upon. While

this is largely due to swelling of the mucous membrane in the second case, there are, in the first, besides diphtheritic necrosis and croupous deposits. The pictures show, in a most instructive manner, how the extensive pseudo-membranes preserve a certain regularity and, concentrically, narrow the lumen to pin-head size.

MORGENTHAU.

The Treatment of the Larynx.

DONALDSON (San Francisco).—The Treatment of the Larynx. *Pacific Medical Journal*, Dec., 1896.

After referring to the investigations made by Oertel (*Archiv. Laryngologie*, Aug., 1895) with the laryngo-stroboscope, Dr. Donaldson criticizes the injudicious treatment of the larynx in many cases of chronic and sub-acute disease of this organ.

One of the most common forms of trouble which presents itself in voice-users—actors, speakers or singers—is the result of overwork or a faulty method of voice production. He deprecates the application of astringent medicaments to the vocal chords, as such applications not only lose their effect but eventually cause a chronic thickening of the vocal chords and permanent impairment of the voice for speaking or singing.

Complete rest from all vocal exertion, from singing or speaking, will, undoubtedly, in many cases restore the vocal organ to its normal condition. But in cases in which the affection of this organ is the immediate result of faulty methods of breathing and of vocal training, there will be a constant tendency to recurrence. The article ends with some excellent advice for correcting these defects.

SCHEPPEGRELL.

Toxic Paresis of the Laryngeal Muscles.

HEYMANN, P. (Berlin).—Toxic Paresis of the Laryngeal Muscles. *Arch. f. Laryng.*, 1896, V. 256.

Toxic paresis of the vocal chords have been but rarely reported. Although mention is made of them in all laryngological and toxicological treatises, and much attention devoted to them by neurologists—being ascribed either to a peripheral neuritis or a more centrally located disease—hardly more than ten observations have been made, at least if only those are accepted as certain which were described since the introduction of the laryngoscope. Yet they cannot be so rare since Tanguerel des Planches, f. i., found aphonia 16 times in 102 cases of lead poisoning.

Aphonia saturnina was well known in the ante-laryngoscopic literature. It is often observed in horses working in white lead factories. Beckmann found, post-mortem, the posterior and lateral crico-arytenoid muscles "atrophied." Some of the authors state that the horses were otherwise healthy and able to do their work after the performance of tracheotomy, which became necessary. From this the conclusion may be drawn that, in horses, lead palsy affected either only the postici muscles or rather the laryngeal muscles generally, or affected them first. In this they differ from rats, whose posterior extremities succumb first; and from cats which die from general paralysis. The author gives the history of three cases, of which the third is the most important.

A girl of nineteen has been working for several years in an artificial flower factory where she hammers the leaves with a lead mallet. A short time ago she had a rather light attack of colic with constipation; the right hand is weak and cannot be extended. She complains of hoarseness and difficulty in breathing. Distinct lead margin on gums. The mirror shows that both vocal cords are slack and cannot be adducted sufficiently, they are arrested at about the middle of the usual course. Paresis of the posticus muscle; it cannot be decided if the anterior crico-thyroid muscle is involved. Recovered in three weeks; electricity and iodide of iron.

In all of these cases the abductor muscles were affected, while Morell Mackenzie asserts that, in all toxic paralysis of the vocal cords, the adductors are at fault. In the first case a relapse took place, which, although rather to be expected, has never been reported in literature.

Paralysis of the laryngeal muscles due to other toxic agents are yet rarer; of metals, there are copper, antimony, phosphorus, and arsenic. Heymann describes a case of marked paresis of the laryngeal muscles which, after recovery, relapsed every time the same work was taken up again—most probably brought on by arsenic. The patient, a man of 51, came under the care of the author for the first time four years ago on account of aphonia and severe dysphagia. He looked as if poisoned by lead, with ghastly complexion and painful walk. There was impaired appetite, constipation, some nausea. The larynx was slightly inflamed and swollen; the left vocal cord stood perfectly still, the right cord moved rather

slowly. He worked in a bronze goods factory at vats containing both cyanide of potash and arsenic. The author thinks the arsenic the cause of the disease. The patient recovered completely after fourteen weeks of treatment. After nine months a relapse set in, with the same symptoms, excepting that this time the right vocal cord could not be brought to the middle line. After two more relapses, the patient could be persuaded to seek other employment. Since that time — only a few months — he has remained healthy.

Reports on organic poisons are still scarcer. Of these, cannabis indica, atropin, opium, cocain are mentioned. It is an old observation that an intoxicated person suddenly may be affected with aphonia, which persists after he has become sober. But only three cases of this kind were examined laryngoscopically. Secretan himself traces them to cerebral congestion; they are not genuine paralyses of the laryngeal muscles or nerves. Morgan's two cases of very slight paresis of the abductors were probably inflammatory paralysis. And Gottstein himself is not certain in regard to his case of double posticus paralysis.

In horses differerent authors have observed paralysis of the vocal cords, especially of the abductor muscles, from various kinds of peas, and confirmed their diagnosis post-mortem. MORGENTHAU.

Advantages of Intubation Over Tracheotomy.

KELLOCK (London).—Advantages of Intubation Over Tracheotomy. *Lancet*, Oct. 3, 1896.

Dr. Kellock sums up his conclusions of the advantages of intubation over tracheotomy, when combined with the injection of antitoxin serum, as follows:

1. The operation can be performed more rapidly and with less resistance.

2. It does not need an anæsthetic.

3. The tube can be removed at an early date, leaving no wound and no passage for the respired air except per vias naturales.

4. It does not necessitate the patient's being kept at any time in an artificially warmed and moistened atmosphere, and obviates the danger to the lungs of breathing air which has not been prepared for respiration by the nasal chambers.

5. It can be employed in cases where parents or friends refuse leave for the "cutting operation."

Tracheotomy has the advantage in those cases where there is a large amount of membrane below the larynx, and also in those cases in which it is unsafe to leave a patient with an intubation tube in the larynx.

SCHEPPEGRELL.

Treatment of Stenosis of the Larynx and Trachea.

KUMMEL.—Treatment of Stenosis of the Larynx and Trachea with Glass Cannulæ After the Method of Mikulicz. *Arch. f. Laryogol., American Medico-Surg. Bull.* Sept. 26, 1896.

The writer gives his experience with his plan of treatment since the year 1888. He regards it as applicable to cicatrical stenosis, profound changes in structure (as after operative proceedures and tumors), in extreme stenosis resulting from scleroma and hypoglottic laryngitis. This method consists of the insertion into the stenosed area of glass cannulæ, whose upper end gradually merges from a circular to a triangular shape or cross-secretion, as this latter end is to rest in the glottis, while the lower (circular) end extends down the trachea. From the anterior border of the tube extends a strong, heavy handle, gradually flattened into a plate at its extremity. This gives perfect control over the insertion of the cannulæ, which is made through an ordinary incision (except somewhat longer) into the trachea.

Kummel has used this device in 11 cases—three of subglottic laryngitis and marked stenosis from scleroma, five of scar-formation of operative and other injuries, and three of cicatricical formation after inflammatory process. Of the 11 cases, nine were cured and two died—one of broncho-pneumonia in consequence of carcinoma of the left half of the larynx, and the other of bronchitis and pleurisy in course of tertiary syphilis with laryngeal and tracheal stenosis. In the latter case the breaking off of the cannula was an exciting cause, and such an accident must be considered as one of the disadvantages of this method of treatment.

SCHEPPEGRELL.

Examination of the Larynx and Trachea Without the Mirror.

SOLIS-COHEN, J. A. (Philadelphia).—*Polyclinic*, Oct. 24, 1896.

The technique of the method introduced by Kirstein of Berlin, is that the laryngoscopic mirror is done away with and direct inspection of the air passages is secured by so depressing the tongue as to draw the epiglottis forward and expose the interior of the larynx and trachea.

In addition to the especially constructed tongue

depressor, the electric lamp may be employed for direct illumination, but ordinarily a reflector may be used with artificial light, and in many cases direct daylight may be utilized.

In one case exhibited by Dr. Solis-Cohen, it was easy to see as far as the bifurcation of the trachea without any other illumination than the diffused daylight of the room. The observer stands in such a position before the sitting patient as enables him to look down upon the structures exposed by the manipulation of the tongue depressor. The patient's head being held backward, much as the sword swallower holds his head when performing his feat. In many cases this method may be used without preliminary cocainization.

The topical applications of the medicaments, and the operative manipulation with forceps and other instruments, can be readily accomplished by a skilled operator as in ordinary methods of surgical operation. This method does not supersede the older methods, but rather compliments it.

Thus the anterior structures are fully and more readily inspected in the image of the mirror, while the posterior portions are infinitely better inspected directly without the mirror. Hence, the new method will be of great value in the recognition and treatment of tuberculous cases in which the lesions predominate posteriorly.

SCHEPPEGRELL.

Acute Infectious Phlegmon of the Larynx.

STILLSON (Seattle, Washington).—Acute Infectious Phlegmon of of the Larynx, with Report of a Case. *Laryngscope*, Nov., 1896.

Acute infectious phlegmon of the larynx is fortunately a rare disease. Bosworth was able to find only 11 cases reported. The writer has been able to find 64 cases, whose histories have been tabulated sufficiently for definite study.

This disease, which is known under a variety of names, is a rapidly fatal one, arises often from apparently trival causes, and usually cannot be diagnosed before the dangerous symptoms set in.

The four most characteristic symptoms of this disease are as follows:

1. A "wooden-like" circumscribed induration in the region of the submaxillary gland. This may be unilateral or bilateral. The induration does not pit on pressure. It

is always rapid in its development. It is followed by phlegmonous edema of the neck similar in appearance and touch to phlegmonous erysipelas anywhere else on the body.

2. A thrusting upward of the base of the tongue toward the palate, and a crowding downward of the epiglottis and the larynx. This renders laryngoscopic examination difficult, if not impossible, but by means of tactile sense the epiglottis and tissues in its neighborhood will be found edematous. It is, indeed, to the resulting dyspnœa that the patient usually succumbs.

3. A "bolster-like" swelling in the mouth between the tongue and the lower jaw, having a deep-red or bluish-red color. Authors differ as to whether this occurs in the substance of the sublingual gland, or simply in the connective tissue around the gland, the gland itself escaping. From the fact that there is always drying-up of the salivary secretions, the functions of the gland are certainly interfered with.

(Acute Infectious Phlegmon of Larynx, etc., No. 2.)

4. Ludwig states that the spread of this induration is so uniform that "it is always bordered by a zone of entirely unaffected cellular tissue."

Of course, with these prominent and characteristic symptoms there are a number of concomitant ones. Anosmia is an early symptom. There is always fever ranging from 101° to 104° F., or more. Usually there are no distinct or at least severe rigors, but there are occasional feelings of chilliness, delirium—at first muttering, then violent—gangrenous sloughing of the mucous membrane of the pharynx and fauces, typhoidal tympanitis and diarrhœa, and in many cases tetanus and cerebro-spinal meningitis.

The author then describes a fatal case of acute infectious phlegmon of the pharynx, which is unique in that the cause was directly traceable to vaccination.

SCHEPPEGRELL.

A Salivary Calculus Removed from an Abscess-Sac in Front of the Larynx.

WINSLOW.—*Journal of Eye, Ear and Throat Diseases*, Oct., 1896.

A colored man, 30 years old, applied to the clinic of the Presbyterian Eye, Ear and Throat Hospital, on account of a lump the size of a hen's egg directly over the pomum Adami. The lump was penetrated by several fistulæ, from which pus was discharging. Upon introducing a probe, a

hard body was detected, which was removed by incision and found to be a salivary calculus.

The history of the case indicated that there had evidently been a sublingual salivary calculus, which had migrated into the tissue of the neck in front of the larynx. The abscess healed under drainage and packing with iodoform gauze. SCHEPPEGRELL.

V.—DIPHTHERIA.

Some Investigations as to the Virulence of Diphtheria.

BIGGS.—Some Investigations as to the Virulence of Diphtheria Occasionally Found in the Throat Secretions in Cases Presenting Clinical Features of Acute Angina. *American Journal of Medical Sciences*, October, 1896.

The bacilli derived from cultures made from 48 cases of this type were tested, and in only three instances were the organisms found to be non-virulent. In all the cases the animal tests showed them to be fully virulent. Of 19 cases which were clinically follicular tonsillitis or pharyngitis, in 17 the test upon animals showed that the bacilli found in the cultures were fully virulent.

Attention is also called to the following classes of cases:

First. The healthy throats in which diphtheria bacilli are present. In these cases investigation almost always shows that the individuals have been in contact with cases ef diphtheria. The presence of bacilli in the throat without any lesions does not, of course, indicate the existence of the disease.

Second. The simple anginas in which virulent diphtheria bacilli are found. These ought to be regarded from a sanitary standpoint in exactly the same way as cases of true diphtheria.

Third. Cases of true diphtheria presenting the ordinary clinical features of diphtheria and showing the Loeffler bacilli.

Fourth. Cases of angina associated with the production of membrane in which no diphtheria bacilli are found. These might be regarded, from a clinical standpoint, as diphtheria; but bacteriological examination shows that some other organism than the Loeffler bacillus is the cause of the process.

It may be urged that the cases described in this paper were possibly instances of streptococcal inflammation of the throat, in which diphtheria bacilli chanced to be pres-

ent in the throat secretions, and were only accidental accompaniments, and not the cause of the inflammation. This inference does not appear to be justified, and the only excuse for it would seem to be the desire to retain the anatomical conception of diphtheria—*i. e.*, that it is always an inflammation associated with the formation of a false membrane. It is this conception which I particularly wish to combat, and I desire especially to emphasize the statement, that all inflammations of the mucous membranes, due wholly or in part to the Klebs-Loeffler bacillus, should be included under the name of diphtheria without reference to the site, or extent, or intensity of the inflammatory process, or the character of the exudate.

SCHEPPEGRELL.

The Antitoxin Treatment of Diphtheria.

BROWNE, LENNOX.—*Journal of Laryng., Rhin. and Otol.*, Dec., 1896.

From a careful study of published reports, Browne sums up his conclusions as follows:

1. That the objections to the claims for antitoxin do not come from one or two writers, but from authorities in all parts of the world.

2. That the basis of comparison of the new treatment with the old, as adopted by enthusiasts, is unfair.

3. That percentage mortality is also misleading.

4. That the gross mortality from diphtheria in this and other large cities has not decreased.

5. That to the increased attention given to the subject by the introduction of serum is the improved mortality mainly due, for the death rate of cases treated with serum is out of all proportion greater than that of cases treated without it in the same hospitals.

6. That this is especially true in the case of children attacked under five years of age, the period of life at which diphtheria is admittedly most fatal.

7. That the value of immunizing injections of antitoxin with a view to prevent diphtheria is but slight, and cannot outweigh the dangers of the procedure.

8. That the scientific basis on which the treatment is founded cannot be sustained by any practical test, especially since internal medical and local treatment, as formerly adopted, is still continued.

9. That the benefits, equally with the dangers, of antitoxin are due to the albumen in the blood serum, and no to any special antidotal element.

10. That the assertion that the comparative failure of antitoxin in this country is due to insufficient dosage is not sustained by the figures now available. SCHEPPEGRELL.

Diagnosis and Treatment of Laryngeal Diphtheria.

CASSELBERRY.—*The North American Practitioner.*

It is frequently difficult, during the first twelve hours, to distinguish primary laryngeal diphtheria from spasmodic laryngitis or false croup of a severe type. Hot fomentation to the neck, steam inhalation, nauseant, and a potassium bromide mixture are not detrimental, should the affection prove to be laryngeal diphtheria. In either case a steam atomizer in the immediate vicinity of the patient may be continued to advantage. In it, especially after intubation, he uses the following mixture, one purpose being to prevent inspissation of mucus and stoppage of the tube:

R	Menthol,	gr. I.
	Ol. eucalypti,	m. X.
	Sodii bicarbonatis,	gr. XX.
	Glycerini,	oz. SS.
	Aquæ, q. s. ad.	oz. IV.

1. At the earliest moment a bacteriological culture should be started on prepared serum, the secretion being scraped from the lower part of the pharynx. This must be incubated from six to twelve hours, stained and examined with a one-twelfth oil-immersion lens for diphtheria bacilli.

2. Without waiting for this, a laryngoscopic examination, even in an infant, will often disclose membrane in the larynx when none exists in the pharynx.

3. If, conjoined with laryngeal stenosis, the slightest exudate can be seen in the pharynx, even if only a punctated exudate on the tonsils, it is, with all reasonable probability, diphtheria.

4. If the laryngeal stenosis continues from the night far into the next day, and is unrelieved temporarily by a momentary 4 per cent. cocain spray, it should be assumed to be diphtheria.

Any one or more of these conditions being present, he considers the diagnosis of laryngeal diphtheria as being established, and administers antitoxin at once. When respiration has become continuously embarrassed to the point of causing marked depression of the sternum, or if serious paroxysms with cyanosis occur with frequency, intubation should be done without further delay. Delay means exhaustion of much needed strength, secondary

edema of the lungs, and liability to sudden death from asphyxia when help is not for the moment at hand. A tank of compressed oxygen gas should be within reach for use freely at times of more than ordinary dyspnœa.

SCHEPPEGRELL.

Report on the Cause and the Prevention of Diphtheria.

KINYOUN.—*American Medico-Surg. Bull.*, Oct. 10, 1896.

Dr. Kinyoun, of Washington, D. C., Chairman of The American Public Health Association, presents the following report of the committee:

1. That there should be uniform rules and regulations adopted by all the states and provinces for the prevention and control of diphtheria. The several governments should assume the responsibility, and act in unison in preventing the spread of the disease from one country to another, and assume authority over interprovincial and interstate communication.

2. That it should be the duty of the health authorities to provide facilities for determining the diagnosis in all suspected cases, by the establishment of inexpensive laboratories for each health jurisdiction. To agree upon a system and means of transmission of material for diagnosis through the mails.

3. Compulsory notification of all suspected cases, and the abolition of the terms croup or membranous croup, unless diphtheria has been excluded by culture and microscopic examination.

4. Compulsory isolation of all cases, domiciliary or in hospital, until the recovered cases show the absence of the diphtheria bacilli.

5. That the medical inspection of schools should be inaugurated under the direction and supervision of the health authorities, by making daily inspections in the larger cities of all school children, for the detection of infectious disease. (The plan advocated by Dr. S. H. Burgin, of Boston, at the last meeting of the association, was highly commended.)

6. School buildings, books, etc., should be subjected to a reliable method of disinfection at least once per month, and oftener if suspected of being infected.

7. The early treatment of those ill of diphtheria with antitoxin; the administration of preventive doses to those who have been exposed to infection and have the bacilli in their throats.

8. Prompt and effective methods of disinfection of infected articles and apartments, to be carried out under the supervision of the health authorities. SCHEPPEGRELL.

The Production of Diphtheria Toxin.

PARK (W. H.) and WILLIAMS (A. W.)—*Journal of Experimental Med.*, January, 1896.

Toxin of sufficient strength to kill a 400-gramme guinea pig in three days and a half in a dose of 0.025 cubic centimetres, developed in suitable bouillon contained in ordinary Erlenmeyer flasks within a period of 24 hours. In such bouillon the toxin reached its greatest strength in from four to seven hours to seven days (0.005 cubic centimeters killing a 500-gramme guinea pig in three days). This period of time covered that of the greatest growth of bacilli, as shown both by the appearance of the culture and by the number of colonies developing on agar plates.

The bodies of diphtheria bacilli did not, at any time, contain toxin in considerable amounts.

The type of the growth of the bacilli, and the rapidity and extent of the production of toxin, depended more on the reaction of the bouillon than upon any other single factor.

The greatest results were obtained in bouillon, which, after being neutralized to litmus, had about seven cubic centimeters of normal soda solution added to each litre. An excessive amount of either acid or alkali prevented the development of toxin.

Strong toxin was produced in bouillon containing peptone ranging from one to ten per cent. The strength of the toxin averaged greater in the two and four per cent. peptone solutions than in the one per cent.

When the stage of the acid reaction was brief and the degree of acidity probably slight, strong toxin developed while the culture bouillon was still acid; but when the stage of acid reaction was prolonged, little if any toxin was produced until just before the fluid became alkaline.

Glucose is deleterious to the growth of diphtheria bacillus and to the production of toxin when it is present in sufficient amounts to cause, by its disintegration, too great a degree of acidity for the fluid culture. When the acid resulting from decomposition of the glucose is neutralized by the addition of alkali, the diphtheria bacillus again grows abundantly. Glucose is not present, at least as a rule, in sufficient amounts in the meat as obtained from

New York butchers, to prevent the rapid production of strong toxin if the bouillon is made sufficiently alkaline.

In our experiments, when other conditions were similar, the strength of the toxin was in proportion to the virulence and vigor of the growth of the bacillus employed.

SCHEPPEGRELL.

Tests of Antitoxic Serum in Diphtheria.

PITFIELD.—*Public Health, The Phil. Polyclinic*, Oct. 10, 1896.

The author examined a number of samples of antitoxic serum purchased in the open market. The method of testing pursued, in brief, is as follows: The specific amount of antitoxin, together with toxin (ten times the minimum fatal dose) was injected into a guinea pig of known weight and good health. This animal was weighed and observed daily until he recovered or died, as the case might be. If he recovered and the antitoxin and toxin in proper relative strengths had been injected, the antitoxin was up to advertised strength; if he died, the antitoxin was not of the strength claimed.

In the following table the results of these experiments are shown. Control animals injected with the minimum fatal dose of toxin alone died in from five to ten days.

A sample of antitoxin said to contain 200 units per cc., made by Behring, was not up to strength.

A sample of antitoxin said to contain 100 units per cc., made by Schering, was up to strength

A sample of antitoxin said to contain 500 units per cc.. made by H. K. Mulford Company, was up to strength.

A sample of antitoxin said to contain 100 units per cc., made by Pasteur Institute of New York, was not up to strength.

SCHEPPEGRELL.

The Soil in Relation to Diphtheria and Its Organism.

SHARP, GORDON (Leeds).—*British Med. Journal*, Aug. 22, 1896.

1. Diphtheria would appear to be epidemic in certain districts. Soils organically laden are dangerous, but much may depend on the nature of the soil. Where the subsoil is porous, a neighborhood may be free. Where the subsoil is impervious, the surface at certain seasons of the year may be a favorable breeding ground.

2. I think I am justified in deducing that soils which would otherwise be sources of the spread of diphtheria, are rendered innocuous by tube drainage.

3. The presence of a large quantity of air in the surface

soil appears to be salutary, and the contrary holds. However, this may be an accidental circumstance.

The close connection between enteric fever, scarlatina and diphtheria has often been remarked, and Bond has especially called attention to the close relationship between scarlatina and diphtheria, and formerly the connection seems to have been even more marked. Thorn has called attention to the fact, that as authorities have improved their water supplies enteric fever has declined in frequency, while under the same conditions and with improved sewerage systems, diphtheria has increased.

Immersion in water for a short time seems fatal to the microbe of diphtheria, while the contrary holds with regard to the organism of enteric fever; both seem to live in sewerage. A moist rather than a water-laden soil seems to be the home of the organism of diphtheria.

SCHEPPEGRELL.

VI.—MISCELLANEOUS; THYROID GLAND; NESOPHAGUS, ETC.

Speech Defects.

ESKRIDGE.—Speech Defects as Localizing Symptoms, from a Study of Six Cases of Aphasia. *Medical News*, Sept. 19th, 1896.

From a study of the symptoms presented by these cases of sensory aphasia, we may conclude that apraxia and all verbal amnesia have no localizing value, except to place the lesion in the sensory or receptive side of the speech mechanism; that inability to count or to play games of cards have no localizing value, as these defects are found in a few cases of motor aphasia; that word-blindness places the lesion in or near the angular gyrus; that word or mind-deafness is evidence that the lesion is in the posterior portions of the first or secondary temporal convolutions.

In each of the affected cases the subcortical, as well as the cortical region concerned in speech, was affected. All the patients suffering from sensory aphasia, with one exception, copied mechanically, transcribing writing into script and printing into printing, giving each letter the amount of shading found in the original, and that all the cases of motor aphasia transcribed printing and writing into script. This seems to be of considerable diagnostic importance in distinguishing the motor from the sensory forms of aphasia.

SCHEPPEGRELL.

Eucain.

The value of this local anæsthetic being still quite undecided, an impartial statement of some of its effects will prove acceptable. In the October number of *Deutsche Monatsschrift fuer Zahnheilkunde*, the question is discussed of injecting eucain into the gums to obtain local anæsthesia. It seems that a swelling sets in, no matter if all aseptic precautions are taken, or a drug is used which does or does nor contain methyl alcohol. Puncturing and pressing the swelling is of no avail. Injections are always painful. It has a great advantage over cocain in acting in periostitis. Ahrenfeld extracted 250 teeth painlessly; 0.3 gramme of an 8% solution suffices. It begins to have its effect 2–5 minutes after injecting, and lasts 10–15 minutes. Wolff employs up to three grammes of a 10% solution. There is no slowing nor quickening of the pulse, nor is there vertigo, syncope or nausea. MORGENTHAU.

The X-Rays in Diagnosis.

JONES, PHILIP MILLS, (San Francisco).—*Pacific Medical Journal*, Nov., 1896.

Dr. Jones states that with a good tube and proper adjustment he has been able to examine the lungs without difficulty, and to locate any area of solidification as large as one-half inch in diameter. The diagnosis of these cases is not a matter of opinion, but the visual presentation of actual conditions. He is of the opinion that ultimately one of the chief uses of the X-rays will be the examination of cases of supposed tuberculosis. He claims that it is very easy to see whether there is or is not an area of solidity in the lungs, and if so, exactly where it is.

SCHEPPEGRELL.

Bronchial Asthma Only During Menstrual Period.

KATZ, J. (Berlin.)—*Deutsche Med. Woch.*, No. 50, 10 Dez., 1896.

So-called uterine asthma is very rare; in fact, some of the authorities object to the terms asthma uterinum, dyspepticum, etc., as tending to obscure the accepted picture of bronchial asthma, and being generally but dysproic conditions resembling asthma. Usually the patients have been neurasthenics, with whom anomalies of breathing are frequent. Not in a single case has the result of sputum examinations been quoted in support of the diagnosis. In the author's case of asthma uterinum there are all the symptoms of essential asthma, the typical attacks, the

characteristic sputum with Leyden's crystals, the spiral and the bronchial fibrinous casts, and all there only during the menstrual period.

Patient, 32 years of age, comes of perfectly healthy family, has been in excellent health herself, has borne three children. Her menstruation has been normal, the intervals only being slightly irregular. There is slight fluor albus since the birth of a child five years ago. Her genital organs were pronounced normal. For about a year the patient is suffering from asthmatic attacks, which begin with her monthly period and cease entirely with it. Her description tallies with that of typical asthma.

The sputum is very characteristic—grayish-white, viscid, with numerous threads of floccular in a mucous fluid, and large-sized fibrinous bronchial casts. The microscope shows spirales and well-formed Leyden's crystals. There is no sputum excepting during the menstrual period. The patient is without a sign of neurasthenia. The author refers to Brissaud's (*Rev. de Medicine*, 1890, p. 884), case of a young man who had an asthmatic attack with every new moon—also a cyclic course in the same intervals as the woman. MORGENTHAU.

Value of X-Rays in Medicine and Surgery.

RAW, NATHAN.—*The Lancet*, Nov. 21, 1896.

Dr. Raw, in order to test the value of the X-rays for the location of foreign bodies, inserted a brass key as far as possible into the right bronchus of the cadaver of a boy through an opening in the trachea. The platinum anode of the Crooke's tube was directed obliquely and almost parallel to the surface of the chest. The exposure given was 50 minutes, the current being turned off every five minutes to cool the platinum and also to warm the tube with the spirit lamp. The negative was developed with an amidol solution, and a bromide print was taken with an exposure of 30 seconds. In the skiagraph, the watch-key is distinctly seen, pointing downward and outward near to the right of the median line and opposite the third and fourth ribs. The outlines of the viscera could also be distinguished. SCHEPPEGRELL.

Notes on Foreign Bodies in Various Regions.

SMITH, J. W.—*Medical Chronicle*, Sept., 1896.

The following table indicates the number of this class of casualities, treated in the accident room of the Royal In-

firmary, Manchester, during the years referred to. The more serious cases which were admitted into the ward were not included:

	1892	1893	1894
Foreign Bodies in Eye,	93	70	63
" " Ear,	13	14	11
" " Nose,	11	15	17
" " Throat and Stomach,	74	54	61
" " Trunk and Extremities,	113	123	115
Bullet Wounds,	10	7	7
Total Number of Casualties Treated,	11,407	11,272	11,336

In the nasal cavities the substances most commonly introduced are beads, peas, beans, maize or pieces of slate pencil. A probe is more useful for extraction than the forceps. A probe bent about one-half inch from its end to a right angle, may be inserted into the nostril behind the foreign body, which can then be drawn out.

A boy was brought to the infirmary who had fallen and driven a slate pencil through his hard palate. The pencil had broken off in the mouth flush with the surface of the palate, its upper end projecting upward and backward in the nose, with the point close to the body of the sphenoid. It was firmly fixed in the bone and could not be seized from the mouth. The patient having been anæsthetized, a pair of narrow bone forceps were passed along the nasal cavity and the pencil there divided, a finger being kept in the posterior nares to guide the forceps and prevent the divided piece from falling backward into the naso-pharynx. The portion remaining imbedded in the palate was then pushed into the nose by the end of a drill applied from the mouth.

When a patient presents himself for an alleged foreign body in his throat, it must first be decided whether the body is still present there, for in a large number of cases it will be found to have passed on into the stomach. In one class of cases, where the patient is being choked by a mass of unmasticated food, generally meat, a digital examination should be made without delay. The barrier is here impacted in the pharynx and mechanically presses on the rima glottidis, but the fact does not seem to be sufficiently appreciated, that when suffocation is imminent, owing to the impaction of a large foreign body in the throat, that the body is within reach of the finger and could be hooked up from its dangerous position with the finger.

The mode of treatment of a body impacted in the œsophagus depends, to some extent, on the nature of the body. Semon lays down two rules on this subject:

1. No foreign body, the presence of which has been

actually detected, ought to be allowed to remain, even if, at the time, it does not produce serious symptoms.

2. No attempt should ever be made to ram an angular or pointed body forcibly down.

The importance of the first rule is shown in the follow-case:

A young man was brought to the infirmary in whose throat a dental plate had been impacted for about 30 hours. He was then examined and the presence of the teeth detected, but no steps were taken for nearly 24 hou. s, when he was sent to the hospital. Under an ænesthetic, the plate was removed with great difficulty, owing to the swelling of the mucous membrane. This swelling subsequently spread to the glottis and tracheotomy became necessary. Death occurred two or three hours later from pneumonia.

A post-mortem examination showed the mucous membrane, at the seat of impaction, to be extensively ulcerated.

The impaction of a dental plate in the œsophagus is always a most serious accident, even if the plate is small and could be recovered by œsophageal forceps, and much more so if œsophagotomy becomas necessary. Of six such cases which he has observed, four proved fatal. This shows the danger of allowing false teeth to remain in the mouth after retiring.

When a body is in the larynx, the symptoms are more acute and call for immediate succor, and, if the condition is desperate, a laryngotomy must be made at once. In doing this, it is not wise to spend time in making a vertical incision. The crico-thyroid interval should be determined with the finger, and the knife held horizontally entered in the middle line and pushed steadily through the larynx. The wound being then held open, either by rotating the blade of the knife in it, or by slipping in a pair of forceps, air is allowed to enter.

The following case illustrates the necessity of prompt action in such cases:

A 10-year-old girl jumped off the steps backward and fell into the road, her head striking the pavement. She was picked up cyanosed and unconscious and died almost immediately, it was concluded, from some intra-cranial injury.

A post-mortem examination revealed a bone collar-stud

most accurately fitted into the interior of the larynx, forming a close-fitting valve, shutting off absolutely the supply of air to the lungs. SHEPPEGRELL.

Exophthalmic Goitre.

SPENCER, (Grand Rapids, Mich.).—Exophthalmic Goitre Treated by Galvanism, with Report of Cases. *Medical News*, Nov. 28, 1896.

Dr. Spencer has had such indifferent results with the various therapeutic agents recommended for the treatment of exophthalmic goitre, that he has given up dependence upon them and has resorted to electro-therapeutic treatment, which he finds of marked benefit in this disease. He advocates the method of Cardew (*London Lancet*, July 4, 1892), with certain modifications:

1. Galvanism is superior to faradism.

2. Weak currents are sufficient—two to three milliamperes. (Spencer uses 10 to 20.)

3. Each application should last six minutes, the application to be made two to three times daily.

The anode should be placed on the back of the neck, over the seventh cervical vertebra; the cathode should be moved up and down the side of the neck, from the mastoid process along the course of great nerves. He has also used galvanism with two poles pressed on either side of the goitre, also with the positive pole over the goitre and the negative over the solar plexus, continuing the current for about five or six minutes in each place. A nurse or competent person, after a little training, can admintster the treatment, the physician seeing the patient frequently. The patient is usually neurotic, and susceptible to trifling impressions. These are causes where patience and perseverance, both on the part of the physicians and the patient, are usually rewarded by marked improvement, and, in nearly all cases, the symptoms gradually disappear.

Spencer is able to corroborate the statement made by Cardew, that we have in electricity an agent powerful for good in the great majority of cases of Graves' disease. Spencer reports six cases showing the benefit of the electro-therapeutic treatment in this disease.

SCHEPPEGRELL.

NOTES AND ANNOUNCEMENTS.

(Under this heading the ANNALS will publish items of interest to its readers. Please address T. Melville Hardie, M. D., 34 Washington Street, Chicago.)

Dr. Jansen, of Berlin, and Dr. Grunert, of Halle, have been made Privat-Docenten.

Dr. F. Schiffers has been appointed Professor-Extraordinary of Laryngology at Liège, France.

Dr. Gherardo Ferreri has been appointed assistant in the Otological Clinic of the University of Rome.

Prof. A. Barth, of Breslau, has accepted the professorship of Otology at the University of Leipsic.

Dr. H. Schwartze, professor-extraordinary at Halle, has received the title of honorary professor.

Dr. H. A. Alderton has been appointed surgeon in the ear department of the Brooklyn Eye and Ear Hospital.

Drs. Mazzi, of Pisa, Massini, of Genoa, and Gradenigo, of Turin, have been made professors-extraordinary.

Dr. W. K. Simpson has been appointed surgeon to the throat department of the New York Eye and Ear Infirmary.

Dr. T. C. Evans has been appointed Professor of Ophthalmology, Otology and Laryngology at the Kentucky School of Medicine, Louisville.

Dr. W. Milligan, of Manchester, has been elected President of the British Laryngological, Rhinological and Otological Association for the ensuing year.

The New York Polyclinic building was destroyed by fire December 25, 1896. Arrangements have been made for continuing the lectures and clinics while the school is being rebuilt.

The 1st Spanish Congress of Oto-laryngology was opened in Madrid, November 19, 1896, under the presidency of Dr. Calleja. The next session will be held at Barcelona, September 20th to 24th, 1898.

Professor N. Ruedinger, one of the founders of the Monatsschrift

fuer Ohrenheilkunde, died at Tutzing, Bavaria, August 25th, 1896, aged 64. He was a distinguished anatomist and published among other things an atlas of the organ of hearing.

October 9th the New York Otological Society entertained Professor McEwen, of Glasgow, at dinner at the German Club, New York. Present: Drs. Gruening, Matthewson, Knapp, Buck, Bacon, J. L. Adams, Dench, Marple, Toeplitz, Lewis, Kipp, Hepburn, Nichols, Berens, Wilson, Whiting and Alderton.

As will be seen by the Announcements on the cover of this number it has been decided to issue the ANNALS OF OPHTHALMOLOGY AND OTOLOGY in two portions, the ANNALS OF OPHTHALMOLOGY as usual in January, April, July and October, and the ANNALS OF OTOLOGY (including Rhinology and Laryngology), during the succeding months of February, May, August and November. It is believed that such an arrangement is to the best interests of all concerned, and we assure our readers that no trouble or expense will be spared to retain the enviable position that the combined periodical has in the past attained. Notwithstanding the vast amount of literature made accessible to the profession by the pages of the ANNALS during the past year (more than double that of any similar journal or journals) the low subscription will be maintained during 1897. It is hoped that every subscriber to the ANNALS will show his appreciation of the "labor of love" that has been expended upon this American enterprise, and will give it his help in every sense of the word.

The 12th International Medical Congress will be held at Moscow, August 19th to 26th. At the meeting of the Otological Section (President, S. von Stein, Moscow; Secretary, Kaspariantz) the following subjects are to be discussed:

1. Inflammation of the middle ear in the new born. 2. Classification of otitis media according to the inflammatory products. 3. Physiological importance of the different parts of the labyrinth, with a discussion of the possibility of complete deafness due to a partial involvement of the labyrinth. 4. Treatment of attic-mastoid suppurations and their consecutive intra-cranial affections. 5. Contribution to the study of cholesteatoma. 6. Ear complications of inflammations of the maxilliary, frontal, and sphenoid sinuses. 7. The comparative value of simple trepanation and the extensive opening of the middle ear cavities in chronic otorrhœa. 8. The therapeutic value of surgical treatment in sclerosis. 9. Acute adenoiditis in adults. 10. Treatment of internal complications of purulent otitis. 11. Primitive affections of the osseous walls of the labyrinth. 12. Therapeutic importance of acoustic exercises for the deaf and deaf-mutes. 13. Dimensions of the cavities of the ear from the point of view of predisposition to auditory affections. 14. Pathology and treatment of sclerosis of the tympanic cavity and consecutive labyrinthine alterations.

The American Laryngological, Rhinological and Otological Society (Southern Section.)

The meeting of the Southern Section of the American Laryngological, Rhinological and Otological Society will be held at the New

St. Charles Hotel, New Orleans, March 3, 1897, the session to commence at 10 a. m.

Members intending to present papers or desiring to have them read by title, and who have not yet sent the titles of their communications, are requested to do so at once, so as not to delay the preparation of the program. Members intending to be present at the meeting will please forward their names at least two weeks before the date of the meeting, so that the question of club privileges and opportunities for permitting visiting members to take part in the Mardi-Gras Carnival festivities may be arranged by the Reception Committee.

W. SCHEPPEGRELL, M. D.,
Chairman South. Sect. Am. L. R. O. Society.

Program of the Western Ophthalmological, Otological, Laryngological and Rhinological Association.

Second annual meeting, St. Louis, Mo., April 8-9, 1897, at "Planters Hotel."

OFFICERS: President, Adolf Alt; vice-presidents, B. E. Fryer, J. H. Martindale; treasurer, W. L. Dayton; secretary, Hal Foster.

Thursday, April 8th—Session at 9 o'clock.

Address of Welcome, by Dr. W. J. Langan, President St. Louis Medical Society.

Response, by Dr. A. C. Corr, President Illinois State Medical Society.

President's Address: Hæmorrhagic Glaucoma—Dr. Adolf Alt, St. Louis, Mo.

Reception of guests.

Registering and payment of dues.

Report of the Secretary and Treasurer.

Election of members.

A cordial invitation is extended to the profession.

The R. R's. have promised one and one-third fare. When buying tickets, ask for a certificate; on reaching St. Louis, have it signed by Dr. Alt.

Presentation of Papers:

1. Report of Six Cases of Removal of Ossicles—Dr. Norval H. Pierce, Chicago, Ill.

2. A Pyramidal and Senile Cataract in One Subject; Report of a Case—Dr. Geo. F. Suker, Toledo, Ohio.

3. A Case of Oculo-Motor Paralysis—Dr. George E. Bellows, Kansas City, Mo.

4. Adenoid Vegetations—Dr. Ellet Orrin Sisson, Keokuk, Iowa.

5. Some Observations Upon the Irritating Effects of Natural Gas Upon Trachoma—Dr. John Johnson Kyle, Marion, Ind.

6. Treatment of Chronic Suppuration of the Middle Ear—Dr. S. S. Bishop, Chicago, Ill.

7. Astigmatism—Dr. Dudley S. Reynolds, Louisville, Ky.

8. Diseases of the Glosso Epiglottic Space—Dr. J. F. Barnhill, Indianapolis, Ind.

9. The Classification of the Exudative Anginæ—Dr. E. B. La Fevre, Abilene, Kansas.

10. Skin Grafting for Malignancy of the Orbit and Entropion—Dr. Flavel B. Tiffany, Kansas City, Mo.

11. Restoration of the Eyelids by Skin Grafting—Dr. W. C. Tyree, Kansas City, Mo.

12. An Improved Skiascope—Dr. J. Ellis Jennings, St Louis, Mo.

13. Scopolamine as a Mydriatic and Cycloplegic—Dr. Wm. S. Fowler, Chicago, Ill.

14. Optic Neuritis—Dr. F. C. Evans, Louisville, Ky.

15. Report of a Case of Congenital Membraneous Cataract with Aphakia—Dr. A. S. Magee, Topeka, Kansas.

16. Moderate Errors of Refraction; Shall We Always Correct Them?—Dr. Albert D. Bulson, Fort Wayne, Ind.

17. Conservatism in Rhinological Practice—Dr. B. M. Berens, Minneapolis, Minn.

18. Mental Depression and Prolonged Melancholia Following Graduated Tenotomy and the Limitation of Prisms—Dr. W. H. Baker, Lynchburg, Va.

19. Report of a Case of Double Mastoid Disease, Operations, Recovery—Dr. J. O. Stillson, Indianapolis, Ind.

20. The Technique of Cataract Extraction—Dr. B. E. Fryer, Kansas City, Mo.

21. Diseases of the Labyrinth—Dr. J. Holinger, Chicago, Ill.

22. Keratoconus—Dr. J. W. Bullard, Pawnee City, Neb.

23. A Case of Inflammatory Glaucoma of Reflex Nasal Origin—Dr. J. Aloysius Mullen, Houston, Tex.

24. Syphilitic Amblyopia—Dr. Robert F. Lemond, Denver, Colo.

25 Congenital Nystagmus—Dr. J. Elliot Colburn, Chicago, Ill.

26. Objective Noises in the Ear—Dr. G. Sterling Ryerson, Toronto, Canada.

27. Function of the Stapedius and Tensor Tympani Muscles—Dr. Thos. F. Rumbold, St. Louis, Mo.

28. Saline Injections in the Treatment of Cyclitis and Iritis—Dr. S. L. Ledbetter, Birmingham, Alabama.

29. Paper—Dr. W. E. Gamble, Chicago, Ill.

30. College Instruction in Ophthalmology—Dr. A. M. Lapsley, Keokuk, Iowa.

31. The Value of Hypnotic Suggestion in Ophthalmic Practice—Dr. Ignatz Mayer, Guthrie, Oklahoma Territory.

32. Description of Dr. McCassy's Trial Frame, Lachrymal Style and Threaded Handle—Dr. J. H. McCassy, Dayton, Ohio.

33. The Lens Tester and Why Used—Dr. J. H. Johnson,

34. The Etiology, Treatment and Prognosis in Exophthalmic Goitre—Dr. J. Fred Clark, Fairfield, Iowa.

35. Extraction of Bilateral Soft Cataract in the Case of a Child Three Years Old—Dr. J. O. McReynolds, Dallas, Texas.

Friday, April 9th. Election of members; election of officers.

Papers:

1. Two Cases of Asthma, Due to Intra Nasal Growths—Dr. W-W. Bulette, Pueble, Colo.

2. Aural Pain—Dr. A. M. Howe, Wichita, Kan.

3. Influence of Vaporized Medicaments on the Respiratory Passages—Dr. Homar M. Thomas, Chicago, Ill.

4. Hysteria in Ophthalmology—Dr. W. L. Dayton, Lincoln, Neb.

5. Otitis Media Circumscripta—Dr. C. M. Holcomb, Winfield, Kan.

6. Uulcers of the Cornea—Dr. H. Z. Gill, Pittsburg, Kan.
7. Paper—Dr. J. D. C. Hoit, Elmwood, Ill.
8. Paper—Dr. Frank Allport, Minneapolis, Minn.
9. Hypertrophic Rhinitis—Dr. W. T. Grove, Eureka, Kan.
10. The Relative Value of Enucleation and Evisceration—Dr. A. R. Amos, Des Moines, Iowa.
11. Paper—Dr. C. W. Kolloch, Charleston, S. C.
12. A Plea for More Mild Treatment of the Conjunctiva—Dr. E. W. Ames, Canton, Ill.
13. Paper—Dr. George Knapp, Vincennes, Ind.
14. Thrombosis of the Lateral Sinus—Dr. B. F. Church, Dallas, Texas.
15. Notes on Nasal Surgery—Dr. A. E. Prince, Springfield, Ill.
16. Paper—Dr. K. K. Wheelock, Fort Wayne, Ind.
17. Chronic Rhinitis as a Factor in Weakened Vision—Dr. Joseph A. Daniel, Davenport, Iowa.
18. Paper—Dr. Charles H. Beard, Chicago, Ill.
19. Treatment of Corneal Lesions by Hydraulic Curetting with Sublimate Solutions—Dr. C. H. Pleasants, Helena, Mont.
20. Paper and Demonstrations; Advanced Methods in Teaching the Deaf—Dr. M. A. Goldstein, St. Louis, Mo.

Discussion opened by Prof. S. T. Walker, Jacksonville, Ill.

21. Three Cases of Suppuration of the Frontal Sinuses Treated by means of the Air Douche—Dr. P. F. Gildea, Colorado Springs, Colo.
22. Toleration of the Eye to Severe Injuries—Dr. H. G. Sherman, Cleveland, Ohio.
23. A Case of Mastoiditis Complicating Purulent Otis Media Cured by Enlarging the Drum Perforation and Syringing the Tympanic Cavity—Dr. Wm. Scheppegrell, New Orleans, La.
24. The Relationship of Obscure Throat Symptoms in Adults to the Pharyngeal Tonsil—Dr. H. Moulton, Ft. Smith, Ark.
25. Suppurative Inflammation of the Frontal Sinuses—Dr. Frank E. Sampson, Creston, Iowa.
26. Experiments on the Eustachian Tubes by Means of the Tongue Thrust into the Naso-Pharynx—Dr. Hamilton Stillson, Seattle, Wash.
27. Atrophic Rhinitis—Dr. I. Cullen, Cincinnati, Ohio.
28. Artificial Membrana Tympani—Dr. E. W. Heltman, Toledo, O.
29. Otitis Media—Dr. E. M. Singleton, Marshalltown, Iowa.
30. Paper—Dr. F. E. Waxham, Denver, Colo.
31. Throat Manifestation of Transmitted Syphillis—Dr. H. W. Whitaker, Columbus, Ohio.
32. Relative Value of the Various Treatments for Deafness Due to Otitis Media—Dr. J. F. Oaks, Chicago, Ill.
33. Eustachian Catarrh—Dr. M. Jay Brown, Salina, Kan.
34. Nitrate of Silver—Dr. Charles E. Walker, Denver, Colo.
35. Paper—Dr. J. H. Martindale, Minneapolis, Minn.
36. Paper—Dr. F. C. Heath, Indianapolis, Ind.
37. Paper—Dr. Francis B. Kellogg, Tacoma, Wash.
38. Paper—Dr. Allen T. Haight, Chicago, Ill.
39. Lymphadenoma, with Report of Cases—Dr. C. W. Parker, St. Louis, Mo.
40. Paper—Dr. D. Emmett Welsh, Grand Rapids, Mich.